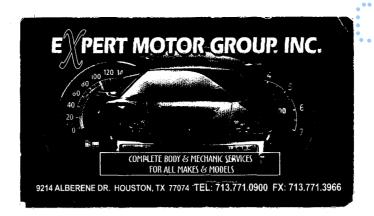
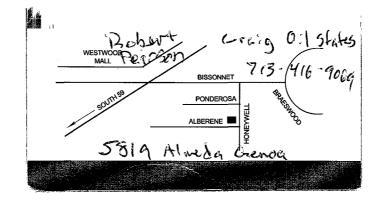
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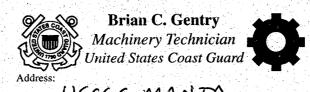
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#### **Claudia Martinez**

Account Manager

Office: (713) 676-1460

4904 Griggs Rd. Houston, TX 77021

Fax: (713) 676-1676 Mobile: (713) 292-3458 Email: cmartinez@cesenvironmental.com

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Jeff Hall, CHMM, CPEA Environmental Health & Safety Mgr. Email: jeff.hall@tycoplastics.com

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Brent Borchardt

Operations Manager

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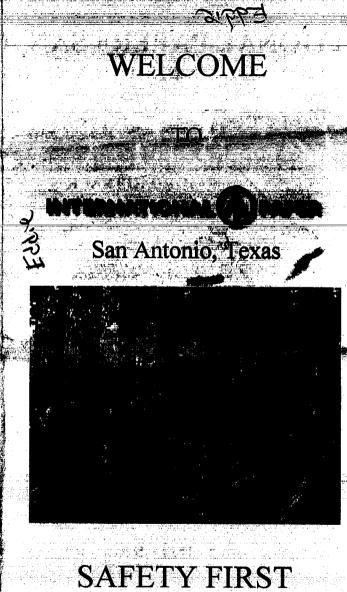
#### GENERALPIANTERUIES

- \*Unauthorized entry to the plant site will be considered trespassing and is punishable by law.
- \* The following are not allowed on plant property:

Firearms, weapons, ammunitions, incendiary devices, intoxicating beverages, illegal narcotics or drugs, or cameras, or pets.

- \*Only authorized personnel are allowed beyond the parking, office, and breakroom areas without an escort.
- \*Be aware of forklift traffic throughout the plant.
- \*In the event of an emergency, visitors must comply with the instructions of the employee visited. In the event a visitor is not accompaniment of any employee, he/she should ask for assistance from the nearest employee:
- \*A material release or authorized shipping document is required to remove properly from the plant.
- \*The following chemical is used in our process:
  - \*50% Liquid Caustic

Thank You



# SAFETY FIRST VISITOR GUIDE

Any 91624 210-389-6627 To insure your visit is a pleasant one please take a few minutes to read this card.

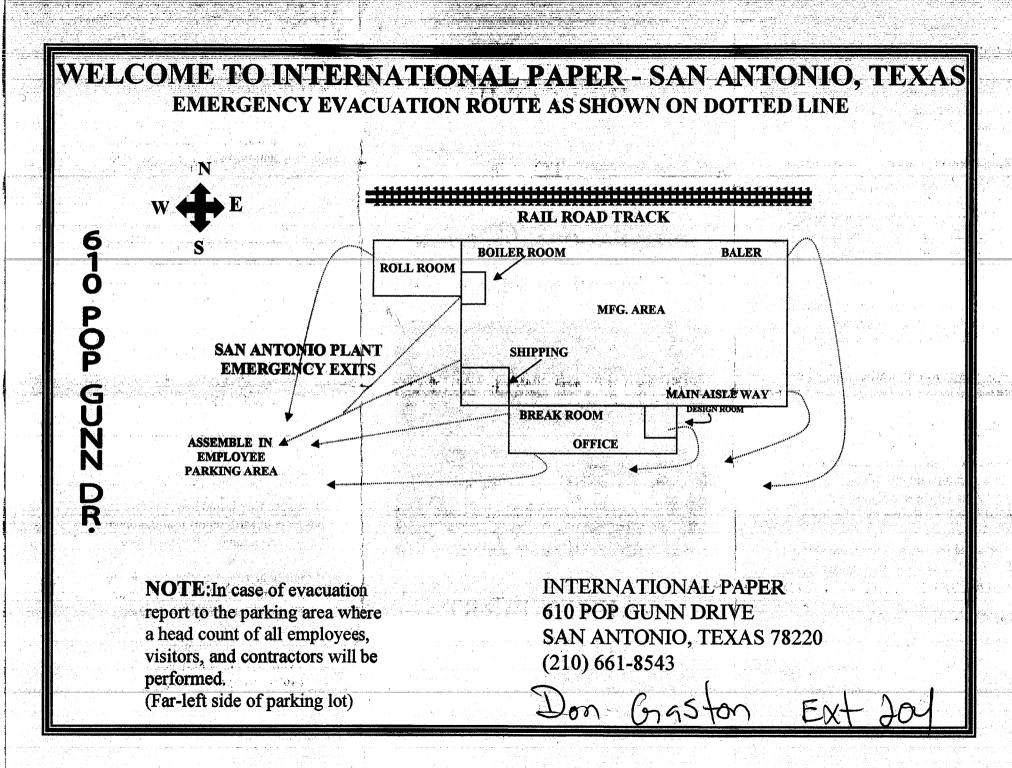
The following is a brief guide to the safety regulations everyone is expected to follow while in the plant.

#### PERSONAL PROTECTION

- 1. Safety glasses and hearing protection must be worn by all personnel at all time in all areas of the building beyond the offices and breakroom. (This will be provided to you).
- Substantial low-heeled shoes are required in plant.

#### FIRE SAFETY

- No smoking is allowed inside the building. You will be shown the designated smoking areas.
- If you see fire, liquid leak, or other potential hazard, report it immediately to an International Paper employee.
- 3. If the fire alarm sounds while you are in the plant, report it immediately to your International Paper contact or evacuate the building. If evacuation is necessary everyone should should meet at the employee assembly area (noted on opposite page)





## Material Safety Data Sheet



G128

SUBID:00000000003838

Version 1

Revision Date 04-11-2006

Print Date 04-14-2006

#### SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

#### Identification of the substance/preparation

Product name

G128

MSDS Number

000000003835

Use of the

Photographic developer concentrate

Substance/Preparation

Product code

FC59P

Business group

IN

#### Company/Undertaking Identification

Agfa Corporation 100 Challenger Road Ridgefield Park, NJ 07660 U.S.A.

Transport Emergency

Non-transportation

Call CHEMTREC: +1 800 4249300

Health Emergency Phone: +1 303 6235716 Agfa Information Phone: +1 201 4402500

International : +1 703 5273887

#### SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

Aqueous photographic developer concentrate, mainly consisting of:

		CAS-No.	Conce	enti	ration [%]
6	Potassium sulphite	10117-38-1	>= 20.0 *	•	<= 30.0
•	Diethylene glycol	111-46-6	>= 5.0	-	<= 10.0
9	Hydroquinone	123-31-9	>= 5.0	-	<= 10.0
•	Potassium carbonate	584-08-7	>= 1.0	-	<= 5.0
6	Sodium bromide	7647-15-6	>= 1.0	•	<= 5.0
4	Water	7732-18-5	>= 50.0	-	<= 70.0

#### **SECTION 3. HAZARDS IDENTIFICATION**

The product as a whole has not been tested. This hazard information is for the individual ingredients.

Emergency Overvie	W	
Form_	:	Liquid
Colour	:	Yellowish
Odour	:	Weak odour.
WARNING I		
Irritating gases/fumes	may be giver	off during burning or thermal decomposition.
		<ol> <li>May cause allergic respiratory reaction. May cause skin action. Causes eye irritation.</li> </ol>

#### Potential Health Effects

Primary Routes of Entry

Eye contact. Skin contact. Inhalation of vapours or mists.

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## Material Safety Data Sheet



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Version 1 Revision Date 04-11-2006

Print Date 04-14-2006

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#### Potential Health Effects

Primary Routes of Entry

: Eye contact. Skin contact. Inhalation of vapours or mists.

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#### Accidental ingestion.

#### Acute health effects

#### Inhalation

Potassium sulphite : May cause :

May cause an allergic reaction in some asthmatics and sulfite sensitive individuals. Possible symptoms include

bronchoconstriction, sweating, flushing, hives, rapid heart rate,

decreased blood pressure and anaphylaxis.

Diethylene glycol : Inhalation of vapors is unlikely due to its low vapor pressure.

However, if misted or handled at elevated temperatures, high concentrations can produce drowsiness, headache, dizziness,

and nausea.

Hydroquinone : Is expected

Is expected to be irritating to the respiratory tract with symptoms of coughing, sore throat, and runny nose.

Potassium carbonate : Is expected to be irritating to the respiratory tract with

symptoms of coughing, sore throat, and runny nose.

Sodium bromide : May cause respiratory tract irritation with symptoms of coughing, sore throat and runny nose. May cause nervous

system effects which can include symptoms of dizziness, incoordination, headache, numbness, and/or confusion.

#### Skin contact

Potassium sulphite

May be irritating to the skin with symptoms of reddening and itching.

Hydroquinone : Can be irritating to the skin with symptoms of reddening,

 Hobits and qualifier May seems skin consideration with

itching, and swelling. May cause skin sensitization with

symptoms of rash, itching, hives, and swelling.

Can be irritating to the skin with symptoms of reddening,

Potassium carbonate : Can be irritating to the itching, and swelling.

Sodium bromide : Can be irritating to the skin with symptoms of reddening,

itching, and swelling.

#### Eye contact

Potassium sulphite

: May be irritating to the eyes with symptoms of reddening,

tearing and stinging.

Hydroquinone

Can be irritating to the eyes with symptoms of tearing, stinging,

reddening, and swelling. May cause corneal injury.

Potassium carbonate

Can be irritating to the eyes with symptoms of tearing, stinging,

reddening, and swelling.

Sodium bromide

: Can be irritating to the eyes with symptoms of tearing, stinging,

reddening, and swelling.

#### Ingestion

Potassium sulphite

: May be harmful if swallowed. Ingestion can liberate sulfurous

acid. Symptoms may include nausea, abdominal pain,

vomiting, and gastric hemorrhage.

May cause an allergic reaction in some asthmatics and individuals sensitive to this chemical. Possible symptoms include bronchoconstriction, sweating, flushing, hives, rapid heart rate, decreased blood pressure, and anaphylaxis.

Diethylene glycol

: Can result in behavioral change, drowsiness, kidney and liver failure, and coma. The oral toxicity is greater in humans than in laboratory animals. The estimated single lethal dose-oral-

human is 1.0 ml/kg.

Hydroquinone

May be harmful if swallowed with symptoms including nausea, vomiting, drowsiness, dizziness, disorientation, bluish skin

color, and stomach pain.

Sodium bromide

Symptoms of ingestion may include abdominal pain, nausea, vomiting, and diarrhea. May cause nervous system effects which can include symptoms of dizziness, incoordination,

headache, numbness, and/or confusion.

#### Chronic health hazards

#### Inhalation

REG NORM

Potassium sulphite

Prolonged or repeated exposure may result in adverse

respiratory effects including cough, tightness of chest and

shortness of breath

Hydroquinone

May cause pulmonary edema with symptoms of breathing

difficulty and tightness of chest.

Skin contact

Potassium sulphite

Repeated or prolonged skin contact may cause allergic

reactions with susceptible persons.

Hydroquinone

: Chronic intensive skin contact may cause dermatitis.

Eye contact

Hydroquinone

: Contact may cause brownish discoloration of conjunctiva and cornea. Repeated or prolonged eye contact may cause photophobia (sensitivity to light). Repeated exposure may

cause intolerance of the eyes to light.

#### Carcinogenicity

The components of this product are not listed by NTP, IARC or regulated as a carcinogen by OSHA.

#### **SECTION 4. FIRST AID MEASURES**

Eye contact

Rinse thoroughly with plenty of water for at least 15 minutes

and consult a physician.

Skin contact

Wash immediately with plenty of water and soap. If symptoms

persist, seek medical advice.

Ingestion Inhalation

Rinse mouth with plenty of water. Seek medical advice. Take person to fresh air. If necessary, seek medical advice.

#### **SECTION 5. FIRE-FIGHTING MEASURES**

Specific hazards during fire

fighting

: In case of fire, thermal decomposition with emission of

hazardous fumes is possible (e.g. SO2).

Special protective equipment

for fire-fighters

Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

Additional advice

Product is not combustible.

#### SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions

See section 8

Environmental precautions

For waste disposal see section 13.

Methods for cleaning up

Dike the spill if necessary. Soak up with absorbent material. Collect large spills into a properly labelled and sealable

container. Prevent release into the drain, soil or surface water.

Additional advice

Wash away residues with plenty of water.

#### **SECTION 7. HANDLING AND STORAGE**

#### Handling

Advice on protection against

No special protective measures against fire and explosion required.

fire and explosion

**Storage** 

Advice on common storage

Store away from strong acids and strong oxidizing agents (e.g.

sadium hypochlorite).

Requirements for storage

Keep container tightly closed. Protect from direct sunlight.

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#### SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

#### **Exposure Limit Values (US)**

Components	CAS-No.	Values	Type	Revision Date	Basis
Hydroquinone	123-31-9	2 mg/m3 2 mg/m3 2 mg/m3	TWA PEL TWA	2002 06 1993 1989	ACGIH OSHA Z1 OSHA Z1A

#### **Exposure controls**

Hygiene measures Employees should wash their hands and face before eating,

drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product. Emergency showers

and eye wash stations should be available.

Respiratory protection Appropriate respiratory protection and/or exhaust locally.

> Under normal conditions of use, respirator protection is not required. If respirators are used, institute a program in accordance with OSHA standard 29CFR10110.134.

Hand protection Use chemical resistant gloves. In case of prolonged immersion

or frequently repeated contact use gloves made of the materials: butyl rubber (thickness >= 0.36 mm, breakthrough time > 480 min), nitrile rubber (thickness >= 0.38 mm, breakthrough time > 480 min) or neoprene (thickness >= 0.65 mm, breakthrough time > 240 min). For intermittent splash

protection corresponding gloves with breakthrough times > 60 min can be used. Avoid gloves made of: natural latex.

Eye protection Safety glasses.

#### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form Liquid Colour Yellowish Weak odour. Odour

23.00 hPa at 20 °C (68 °F) Vapour pressure Relative density pH (25 °C, 77 °F) 1.295 at 20 °C (68 °F)

11.1

<0 °C (< 32 °F) Melting point/range > 100 °C (> 212 °F) Boiling point/range Not applicable Relative vapour density > 200 °C (> 392 °F) Flash point

14.2 %, VOC content excluding water VOC content

#### SECTION 10. STABILITY AND REACTIVITY

The product is stable under normal conditions of storage and use. Stability

Hazardous decomposition Hazardous decomposition products

Sulphur dioxide products Not applicable Thermal decomposition

Avoid contact with strong acids and strong oxidizing agents Conditions to avoid (e.g. sodiumhypochlorite). Remove all chemicals and rinse the

processing tanks thoroughly with water before using any

cleansing products.

#### SECTION 11. TOXICOLOGICAL INFORMATION

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Toxicity data specific for individual ingredients in their pure state:

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#### Acute oral toxicity

•	Potassium sulphite Diethylene glycol Hydroquinone Potassium carbonate Sodium bromide	: :	LD50 rat LD50 rat LD50 rat LD50 rat	2,610 mg/kg 12,565 mg/kg 320 mg/kg > 2,000 mg/kg 3,500 mg/kg
•	Sodium bromide	:	LD50 rat	3,500 mg/kg

#### Acute dermal toxicity

<ul> <li>Diethylene glycol</li> </ul>	: LD50 rabbit	11,890 mg/kg
<ul> <li>Hydroquinone</li> </ul>	: LD50 cat	5,970 mg/kg
<ul> <li>Sodium bromide</li> </ul>	: LD50 rabbit	> 2,000 mg/kg

#### Carcinogenicity

٠	Hydroquinone	: Formation of benign kidney tumors occured only after	
		nephropathy developed and only in one strain of male r	at.
		Additional effects have been reported. Although an incr	ease in
		leukemia was reported in the female F-344 rat, this res	ult was
		not reproduced in a subsequent study. There was no e	vidence
		of cancer in male mice following chronic aral administra	tion

of cancer in male mice following chronic oral administration.
Increases in primarily benign tumors were noted in female
mice, although this finding was not reproduced in a subsequent
study. No tumors were reported in mice following long-term

dermal application.

#### Toxicity to reproduction

Hydroquinone
 Has not caused reproductive effects in male or female animals when administered orally at dose levels not causing systemic

toxicity in the mother.

#### Mutagenicity

• Hydroquinone : Studies using the 'Ames' test were generally negative. There is

some evidence for mutagenicity from studies in animals, in isolated cells taken from animals and plants, and in other

microorganisms.

#### Teratogenicity

Hydroquinone
 Has not caused birth defects when administered orally at dose

levels not causing systemic toxicity in the mother.

#### **Chronic toxicity**

Diethylene glycol : Repeated ingestion over two years produced liver and kidney

damage and bladder stones in laboratory rats.

Hydroquinone : Adverse kidney effects have been observed primarily in one

strain of male rat (F-344) following chronic administration of oral doses. Nephropathy did not occur in two other strains of

rats, mice, or dogs.

#### Other information

There is insufficient scientific evidence for classifying hydroquinone as a suspected carcino- or mutagenic substance in humans. Epidemiologic studies over a period of 48 years, wherin -during manufacturing and use of hydroquinone- more than 800 human individuals were daily exposed at significant airborne concentrations (greater than the occupational threshold of 2 mg/m³), demonstrated that such exposure is not associated with the induction of cancer in humans. Hazard labelling of this preparation: see section 15.

#### **SECTION 12. ECOLOGICAL INFORMATION**

#### Elimination information (persistence and degradability)

#### Blodegradation

Hydroquinone : OECD 301D Assessment of biological degradability

> 80 % after 28 d

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#### **Ecotoxicity effects**

Ecotoxicity data specific for individual ingredients in their pure state:

#### Toxicity to fish

Potassium sulphite : Species: Leuciscus idus (golden orfe)

LC50: > 220 mg/l/ 96 h

• Diethylene glycol : Species: Lepomis macrochirus (bluegill sunfish)

LC50: > 1,000 mg/l/ 96 h

Hydroquinone : Species: Brachidanio rerio (zebra fish)

LC50: 0.1 mg/l/ 96 h

Potassium carbonate
 Species: Pimephales promelas (fathead minnow)

LC50: > 100 mg/l/ 96 h

Sodium bromide : Species: Lepomis macrochirus (bluegill sunfish)

LC50: > 1,000 mg/l/ 96 h

#### Toxicity to daphnia

Potassium sulphite
 Species: Daphnia magna (water flea)

EC50: 89 mg/l/ 48 h

• Diethylene glycol : Species: Daphnia magna (water flea)

EC50: > 1,000 mg/l/ 24 h

• Hydroquinone : Species: Daphnia magna (water flea)

EC50: 0.3 mg/l/ 48 h

• Potassium carbonate : Species: Daphnia magna (water flea)

EC50: 100 mg/l/ 48 h

• Sodium bromide : Species: Daphnia magna (water flea)

EC50: > 1,000 mg/l/ 48 h

#### Toxicity to algae

• Diethylene glycol : Species: Scenedesmus quadricauda (algae)

EC0: 2,700 mg/l/ 7 d

• Hydroquinone : Species: Selenastrum capricornutum (algae)

EC50: 0.3 mg/l/ 72 h

#### Toxicity to bacteria

• Potassium sulphite : Species: Pseudomonas putida (bacteria)

EC10: 250 mg/l/ 17 h

• Diethylene glycol : Species: Pseudomonas putida (bacteria)

EC10: 8,000 mg/l/ 72 h

#### SECTION 13. DISPOSAL CONSIDERATIONS

#### Waste disposal methods

Waste disposal should be in accordance with existing federal, state and local environmental control laws. Discharge to sewer may require approval of permitting authority and may require pretreatment.

#### Empty containers.

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Recondition or dispose of empty container in accordance with governmental regulations.

#### US. RCRA Hazardous Waste Classification (40 CFR 261)

If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

#### **SECTION 14. TRANSPORT INFORMATION**

Not classified as dangerous in the meaning of transport regulations.

#### **SECTION 15. REGULATORY INFORMATION**

#### **US. Toxic Substances Control Act (TSCA)**

All of the components of this product are listed on the TSCA Inventory.

#### **US. OSHA Classification**

This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

# US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A)

Hydroquinone

Threshold planning quantity, lower value: 500 lbs

•

Threshold planning quantity, upper value: 10,000 lbs

#### US. SARA 311/312 Hazard Categories

Immediate Health Hazard. Delayed Health Hazard.

#### US. EPA CERCLA Hazardous Substances (40 CFR 302)

Hydroquinone

: Reportable quantity: 100 lbs

#### US. California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects or any other harm.

#### State Right-to-Know Information

The following chemicals are specifically listed by individual states. Other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

# US. Massachusetts Commonwealth's Right-to-Know Law (Appendix A to 105 Code of Massachusetts Regulations Section 670.000)

		CAS-No.	Concentra	tion [%]
•	Hydroquinone	123-31-9	>= 5.0 -	<= 10.0 -

# US. New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5)

		CAS-No.	Concentra	ation [%]
•	Hydroguinone	123-31 <b>-</b> 9	>= 5.0 -	<= 10.0

#### US. Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323)

	<u>CAS-No.</u>	Concentration [%]		
Diethylene glycol	111-46-6	>= 5.0 -	<= 10.0	
<ul> <li>Hydroquinone</li> </ul>	123-31-9	>= 5.0 -	<= 10.0	

# US. Rhode Island Hazardous Substances Right-to-Know Act (R.I. Gen. Laws Section 28-21-1 et. seq.)

		CAS-No. Con		
•	Diethylene glycol	111-46-6	> <b>≈</b> 5.0 -	<= 10.0
•	Hydroquinone	123-31-9	>= 5.0 -	<= 10.0

# US. Massachusetts, New Jersey, Pennsylvania or Rhode Island Right to Know Substance Lists: See Section 2.

#### Canadian WHMIS Classification

D1B : Toxic Material Causing Immediate and Serious Toxic Effects

D2A : Very Toxic Material Causing Other Toxic Effects
D2B : Toxic Material Causing Other Toxic Effects

#### Canadian Environmental Protection Act (CEPA)

All components of this product are on the Canadian DSL list.

Dec 19 2007 8:16PM HP LASERJET FAX

#### **SECTION 16. OTHER INFORMATION**

#### US. HMIS Rating

Health		2
Flammability	:	0
Reactivity	:	0

(0 = Minimal, 1 = Slight, 2 = Moderate, 3 = Serious, 4 = Severe)

## US. NFPA 704M Rating

Health	:	2
Flammability	:	0
Reactivity	:	0

(0 = Insignificant, 1 = Slight, 2 = Moderate, 3 = High, 4 = Extreme)

Agfa Corporation's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by Agfa Corporation as a customer service.

This MSDS is replacing Agfa MSDS number 265T 005

This information is furnished without warranty, expressed or implied, and is believed to be accurate to the best knowledge of Agfa Corporation. The data on this MSDS relates only to the specific material designated herein. Agfa Corporation assumes no legal responsibility for use or reliance upon these data.

# FAX SHEET

TO: Ricky Perkins	
COMPANY: AXIS	
FAX: 936-447-2003	
DATE: 12-18-07	
NUMBER OF PAGES INCLUDING COVER: _	9
RE: developer MSDS	·

# Glenda Richardson

A.X.I.S Inc.
AMERICAN X-RAY & INSPECTION SERVICES, INC.
1528 OLIVER \*MIDLAND, TX. 79701
432-296-1127 CELL\* 432-682-6600 OFFICE\*432-682-6606 FAX

## Material Safety Data Sheet



## G335, PART A

SUBID:000000008579

Version 1

Revision Date 01-30-2006

Print Date 01/31/2006

## SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

#### Identification of the substance/preparation

Product name **MSDS Number**  G335, PART A 000000008579

Use of the

Photographic fixing concentrate

Substance/Preparation

Product code

LXW6T, LXW7V, LXW8X

Business group

#### Company/Undertaking Identification

Agfa Corporation 100 Challenger Road Ridgefield Park, NJ 07660 U.S.A.

Transport Emergency

Non-transportation

Call CHEMTREC: +1 800 4249300

Health Emergency Phone: +1 303 6235716

International: +1 703 5273887

Agfa Information Phone: +1 201 4402500

#### SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

Aqueous photographic fixing concentrate, mainly consisting of:

		CAS-No.	Con	contra	ntion [%]
9	Ammonium thiosulphate	7783- <b>18-8</b>	>= 40.0	- 6'	<= 60.0
•	Sodium sulphite	7757-83-7	>= 1.0	•	<= 5.0
9	Acetic acid	64-19-7	>≕ 1.0	•	<= 5.0
•	Boric acid	10043-35-3	>= 1.0	-	<≈ 5.0
•	Water	7732-18-5	>= 30.0	-	<= 40.0
•	Sodium acetate	127-09-3	>= 1.0	-	<= 5.0

#### SECTION 3. HAZARDS IDENTIFICATION

The product as a whole has not been tested. This hazard information is for the individual ingredients.

Irritating gases/fumes may be given off during burning or thermal decomposition.	Form	:	Liquid			
WARNING! Irritating gases/fumes may be given off during burning or thermal decomposition.	Colour	:	Colourless.			
	Odour	:	Slightly pungent smell			
Imitating gases/fumes may be given off during burning or thermal decomposition.  May cause respiratory tract irritation. May cause allernic respiratory reaction. May cause skin	WARNING!					
May cause respiratory tract irritation. May cause allemic respiratory reaction. May cause skin	Irritating gases/fumes ma	y be given	off during burning or thermal decomposition.			
may becase reshricterly rest interior; may becase anergic respiratorly resource; may becase sun	May cause respiratory tract irritation. May cause allergic respiratory reaction. May cause skin					

### Potential Health Effects

Primary Routes of Entry

: Eye contact. Skin contact. Inhalation of vapours or mists.

Accidental ingestion.

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## Material Safety Data Sheet

Axis (partial)

# G335, PART A

SUBID:000000008579

Version 1 Revision Date 01-30-2006 Print Date 01/31/2006

#### SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

#### identification of the substance/preparation

Product name

G335, PART A

**MSDS Number** 

000000008579

Use of the

Photographic fixing concentrate

Substance/Preparation

Product code

LXW6T, LXW7V, LXW8X

**Business** group

#### Company/Undertaking Identification

Agfa Corporation 100 Challenger Road Ridgefield Park, NJ 07660 U.S.A.

Transport Emergency

Non-transportation

Call CHEMTREC: +1 800 4249300 International: +1 703 5273887 Health Emergency Phone: +1 303 6235716 Agfa Information Phone: +1 201 4402500

Aqueous photographic fixing concentrate, mainly consisting of:

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

	CAS-No.			ation [%]
<ul> <li>Ammonium thiosulphate</li> </ul>	7783-18-8	>= 40.0	•	<= 60.0
<ul> <li>Sodium sulphite</li> </ul>	7757-83-7	>= 1.0	•	<= 5.0
<ul> <li>Acetic acid</li> </ul>	64-19-7	>≕ 1.0	•	<= 5.0
Boric acid	10043-35-3	>= 1.0	-	<= 5.0
Water	7732-18-5	>= 30.0	-	<= 40.0
<ul> <li>Sodium acetate</li> </ul>	127-09-3	>= 1.0	-	<= 5.0

#### **SECTION 3. HAZARDS IDENTIFICATION**

The product as a whole has not been tested. This hazard information is for the individual ingredients.

<b>,</b>	
	Liquid
:	Colourless.
:	Slightly pungent smell
may be given	off during burning or thermal decomposition.
	May cause allergic respiratory reaction. May cause skin action. May cause eye irritation.
	may be giver

Potential Health Effects

Primary Routes of Entry

: Eye contact. Skin contact. Inhalation of vapours or mists.

Accidental ingestion.

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#### Acute health effects

#### Inhalation

 Ammonium thiosulphate : Is expected to be irritating to the respiratory tract with symptoms of coughing, sore throat, and runny nose.

Sodium sulphite
 Is expected to be irritating to the respiratory tract with symptoms of coughing, sore throat, and runny nose. May

symptoms of coughing, sore throat, and runny nose. May cause an altergic reaction in some asthmatics and sulfite sensitive individuals. Possible symptoms include

bronchoconstriction, sweating, flushing, hives, rapid heart rate,

decreased blood pressure and anaphylaxis.

Acetic acid : Is expected to be irritating to the respiratory tract with

symptoms of coughing, sore throat, and runny nose.
Is expected to be irritating to the respiratory tract with symptoms of coughing, sore throat, and runny nose.

Skin contact

Boric acid

Ammonium thiosulphate : May be irritating to the skin with symptoms of reddening and

itching.

Sodium sulphite : May be irritating to the skin with symptoms of reddening and

itching. May cause skin sensitization with symptoms of rash,

itching, hives, and swelling.

Acetic acid : Skin sensitization is rare, but has been reported.

Boric acid : May be irritating to the skin with symptoms of reddening and

itching.

Eye contact

Ammonium thiosulphate : May be irritating to the eyes with symptoms of reddening,

tearing and stinging.

Sodium sulphite : May be irritating to the eyes with symptoms of reddening,

tearing and stinging.

Acetic acid : Overexposure can cause severe irritation resulting in burning,

stinging, reddening, tearing, swelling and possible injury to the

cornea depending on the concentration.

Boric acid : May be irritating to the eyes with symptoms of reddening,

tearing and stinging.

Ingestion

Ammonium thiosulphate : May cause gastrointestinal irritation.

Sodium sulphite : May cause gastrointestinal irritation.

Acetic acid
 Swallowing high concentrations may cause severe injury.
 Boric acid
 May cause damage to the gastrointestinal tract with pain.

May cause damage to the gastrointestinal tract with pain, nausea, vomiting, diarrhea, headache, confusion and drowsiness. Ingestion causes damage of central nervous

system, liver, kidneys, blood and bone marrow.

#### Chronic health hazards

#### Inhalation

Sodium sulphite : Repeated or prolonged exposure may cause an allergic

respiratory reaction in previously exposed individuals.

Boric acid
 Repeated or prolonged inhalation may cause pain, nausea,

vomiting, diarrhea, headache, confusion and drowsiness.

Skin contact

Sodium sulphite : Repeated or prolonged skin contact may cause allergic

reactions with susceptible persons.

Boric acid : Chronic intensive skin contact may cause dermatitis.

Ingestion

Boric acid : May cause effects similar to those mentioned in acute

ingestion. Additional symptoms may include loss of appetite,

reddening of the tongue, loss of hair and kidney injury.

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#### Carcinogenicity

The components of this product are not listed by NTP, IARC or regulated as a carcinogen by OSHA.

#### **SECTION 4. FIRST AID MEASURES**

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes

and consult a physician.

Skin contact Wash immediately with plenty of water and soap. If symptoms

persist, seek medical advice.

Ingestion Rinse mouth with plenty of water. Seek medical advice. Inhalation

Take person to fresh air. If necessary, seek medical advice.

#### **SECTION 5. FIRE-FIGHTING MEASURES**

Specific hazards during fire

fighting

In case of fire, thermal decomposition with emission of hazardous fumes is possible (e.g. sulphur dioxide and

ammonia).

Special protective equipment

for fire-fighters

Firefighters should be equipped with self-contained breathing

apparatus to protect against potentially toxic and irritating

fumes.

Additional advice Product is not combustible.

#### SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions

See section 8.

**Environmental precautions** Methods for cleaning up

For waste disposal see section 13.

Dike the spill if necessary. Soak up with absorbent material.

Collect large spills into a properly labelled and sealable

container. Prevent release into the drain, soil or surface water.

Additional advice

Wash away residues with plenty of water.

#### SECTION 7. HANDLING AND STORAGE

#### Handling

Advice on protection against

fire and explosion

No special protective measures against fire and explosion

required.

#### Storage

Advice on common storage

Store away from strong acids, strong alkalis and strong

oxidizing agents.

Requirements for storage

areas and containers

Keep container tightly closed. Protect from direct sunlight.

#### SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

#### Exposure Limit Values (US)

Components	CAS-No.	Values	Туре	Revision Date	Basis
Acetic acid	64-19-7	10 ppm 15 ppm 25 mg/m3 25 mg/m3	TWA STEL PEL TWA	2002 2002 06 1993 1989	ACGIH ACGIH OSHA Z1 OSHA Z1A

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**Exposure controls** 

Hygiene measures : Observe normal precautions when handling chemicals. Avoid

inhaling vapour. Keep away from foodstuffs, drinks and

tobacco.

Respiratory protection : Appropriate respiratory protection and/or exhaust locally.

Under normal conditions of use, respirator protection is not required. If respirators are used, institute a program in

accordance with OSHA standard 29CFR10110.134.

Hand protection : Use chemical resistant gloves. In case of prolonged immersion

or frequently repeated contact use gloves made of the materials: butyl rubber (thickness >= 0.36 mm, breakthrough time > 480 min), nitrile rubber (thickness >= 0.38 mm, breakthrough time > 480 min) or neoprene (thickness >= 0.65 mm, breakthrough time > 240 min). For intermittent splash

protection corresponding gloves with breakthrough times > 60

min can be used. Avoid gloves made of: natural latex.

Eye protection

Personal protective :

equipment

Safety glasses.

Employees should wash their hands and face before eating,

drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product. Emergency showers

and eye wash stations should be available.

#### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form : Liquid

Colour : Colourless.

Odour : Slightly pungent smell Relative density : 1.343 at 20 °C (68 °F)

pH (25 °C, 77 °F) : 5.4

Melting point/range : < 0 °C (< 32 °F)
Boiling point/range : > 100 °C (> 212 °F)
Relative vapour density : Not applicable

VOC content : 3.0 %

VOC content excluding water

#### SECTION 10, STABILITY AND REACTIVITY

Stability

Hazardous decomposition

products

\*\*

Thermal decomposition Conditions to avoid

The product is stable under normal conditions of storage and use.

Hazardous decomposition products

Sulphur dioxide and ammonia

Not applicable

Avoid contact with strong acids, strong alkalis and strong oxidizing agents. Remove all chemicals and rinse the

oxidizing agents. Remove all chemicals and rinse the processing tanks thoroughly with water before using any

cleansing products.

#### SECTION 11. TOXICOLOGICAL INFORMATION

Toxicity data specific for individual ingredients in their pure state:

#### Acute oral toxicity

Ammonium thiosulphate : LD50 rat 2,890 mg/kg
Sodium sulphite : LD50 rat 3,560 mg/kg
Acetic acid : LD50 rat 3,310 mg/kg
Boric acid : LD50 rat 2,660 mg/kg

Acute inhalation toxicity

Acetic acid : LC50 rat 11.4 mg/V 4 h

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#### Acute dermal toxicity

Acetic acid

: LD50 rabbit

1,060 mg/kg

Boric acid

LD50 rat

> 2,000 mg/kg

#### Other information

In normal conditions of use, sulphur dioxide may be set free in concentrations well below the threshold limit value (TLV) of 2 ppm. Asthmatic individuals, however, may possibly be sensitive to concentrations as low as 0.1 ppm.

#### SECTION 12. ECOLOGICAL INFORMATION

#### Elimination information (persistence and degradability)

#### Biodegradation

Acetic acid

: OECD 301D Assessment of biological degradability

99 % after 30 d

#### **Ecotoxicity effects**

Ecotoxicity data specific for individual ingredients in their pure state:

#### Toxicity to fish

· Ammonium thiosulphate

: Species: Poecilia reticulata (guppy)

LC50: > 200 mg/l/ 48 h

Sodium sulphite

: Species: Leuciscus idus (golden orfe)

LC50: > 220 mg/l/ 96 h

Acetic acid

: Species: Pimephales promelas (fathead minnow)

LC50: 88 mg/l/ 96 h

· Boric acid

: Species: Carassius auratus (goldfish)

LC50: 178 mg/l/ 72 h

#### Toxicity to daphnia

• Sodium sulphite

: Species: Daphnia magna (water flea)

EC50: 273 mg/l/ 48 h

Acetic acid

Species: Daphnia magna (water flea)

EC50: 47 mg/l/ 24 h

· Boric acid

Species: Daphnia magna (water flea)

EC50: 133 mg/l/ 48 h

#### Toxicity to algae

Acetic acid

Species: Scenedesmus quadricauda (algae)

EC10: 4,000 mg/l/ 8 d

#### Toxicity to bacteria

Sodium sulphite

: Species: Pseudomonas putida (bacteria)

EC50: 770 mg/l/ 17 h

Acetic acid

Species: Pseudomonas putida (bacteria)

EC10: 2,850 mg/l/ 16 h

Boric acid

: Species: Pseudomonas putida (bacteria)

EC50: > 1,000 mg/l/ 3 h

#### Further information on ecology

Biochemical oxygen demand :

94,100 mg/l

within 5 days (BOD5)

Chemical Oxygen Demand

351,000 mg/l

(COD)

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#### **SECTION 13. DISPOSAL CONSIDERATIONS**

#### Waste disposal methods

Environmental regulations, discharge of chemicals and washwater, waste treatment and disposal conditions of chemicals and their packaging may vary from one country to another. The relevant local regulations should be consulted. When this product or its contaminated packaging has to be removed as waste, contact an authorized waste contractor. May be discharged to drain if local regulations permit.

#### US. RCRA Hazardous Waste Classification (40 CFR 261)

If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

#### **SECTION 14. TRANSPORT INFORMATION**

Not classified as dangerous in the meaning of transport regulations.

#### **SECTION 15. REGULATORY INFORMATION**

#### US. Toxic Substances Control Act (TSCA)

All of the components of this product are listed on the TSCA Inventory.

#### US. OSHA Classification

This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

#### US. SARA 311/312 Hazard Categories

Immediate Health Hazard. Delayed Health Hazard.

#### US. EPA CERCLA Hazardous Substances (40 CFR 302)

Acetic acid

: Reportable quantity: 5,000 lbs

#### US. California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects or any other harm.

#### State Right-to-Know Information

The following chemicals are specifically listed by individual states. Other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

# US. Massachusetts Commonwealth's Right-to-Know Law (Appendix A to 105 Code of Massachusetts Regulations Section 670.000)

		<u>CAS-No.</u>	Cont	;en	tration [%]
•	Ammonium thiosulphate	7783-18-8	>= 40.0	-	<= 60.0
	Acetic acid	64-19-7	>= 1.0	-	<= 5.0

# US. New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5)

		<u>CAS-No.</u>	Concentr	ation [%]
•	Ammonium thiosulphate	7783-18-8	>= 40.0 -	<= 60.0
	Acetic acid	64-19-7	>= 1.0 ~	<= 5.0

# US. Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323) CAS-No. Concentration [%]

REG\_NOAM 6/8 EN

· Ammonium thiosulphate

7783-18-8

>= 40.0 >= 1.0 <= 60.0

Acetic acid

64-19-7

<= 5.0

US. Rhode Island Hazardous Substances Right-to-Know Act (R.I. Gen. Laws Section 28-21-1 et. seq.)

CAS-No.

Concentration [%]

Acetic acid

64-19-7

>= 1.0 -

<= 5.0

US. Massachusetts, New Jersey, Pennsylvania or Rhode Island Right to Know Substance Lists: See Section 2.

#### Canadian WHMIS Classification

D2A :

Very Toxic Material Causing Other Toxic Effects

Toxic Material Causing Other Toxic Effects

#### Canadian Environmental Protection Act (CEPA)

All components of this product are on the Canadian DSL list.

#### **SECTION 16. OTHER INFORMATION**

#### **US. HMIS Rating**

Health	:	1
Flammability	;	O
Reactivity	:	0

(0 = Minimal, 1 = Slight, 2 = Moderate, 3 = Serious, 4 = Severe)

#### US. NFPA 704M Rating

Health	:	1
Flammability	:	0
Reactivity		0

(0 = Insignificant, 1 = Slight, 2 = Moderate, 3 = High, 4 = Extreme)

Agfa Corporation's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by Agfa Corporation as a customer service.

This MSDS is replacing Agfa MSDS number 079TA.004

This information is furnished without warranty, expressed or implied, and is believed to be accurate to the best knowledge of Agfa Corporation. The data on this MSDS relates only to the specific material designated herein. Agfa Corporation assumes no legal responsibility for use or reliance upon these data.

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7/8

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# FAX SHEET

TO: Kicky Parkins	
COMPANY: AXIS	
FAX: 936-447-2003	
DATE: 12-18-07	
NUMBER OF PAGES INCLUDING COVER: _	9
RE: fiver Part A MSDS	

## Glenda Richardson

A.X.I.S Inc. AMERICAN X-RAY & INSPECTION SERVICES, INC. 1528 OLIVER \*MIDLAND, TX. 79701 432-296-1127 CELL\* 432-682-6600 OFFICE\*432-682-6606 FAX

Axio part Bonvertrate

#### Material Safety Data Sheet

## AGFA 🇆

### G335, PART B

SUBID:000000008580

Version 1

Revision Date 01-30-2006

Print Date 01/31/2006

#### SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

#### Identification of the substance/preparation

Product name

G335, PART B

MSDS Number

000000008580

Use of the

Photographic fixing concentrate

Substance/Preparation

Product code

LXW6T, LXW7V, LXW8X

Business group

IN

#### Company/Undertaking Identification

Agfa Corporation 100 Challenger Road Ridgefield Park, NJ 07660 U.S.A.

Transport Emergency

Non-transportation

Call CHEMTREC: +1 800 4249300

Health Emergency Phone: +1 303 6235716

International: +1 703 5273887

Agfa Information Phone: +1 201 4402500

#### SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

Aqueous photographic fixing concentrate, mainly consisting of:

		CAS-No.		Concentration [%]			
	Aluminium sulphate	10043-01-3	>= 5.0	-	<= 10.0		
•	Acetic acid	64-19-7	>= 5.0	-	<= 10.0		
•	Water	7732-18-5	>= 80.0	-	<= 100.0		

#### **SECTION 3. HAZARDS IDENTIFICATION**

The product as a whole has not been tested. This hazard information is for the individual ingredients.

<b>Emergency Overvie</b>	W	
Form	T:	Liquid
Colour	:	Colourless.
Odour	1:	Smell of acetic acid
WARNING!	may be given	
		off during burning or thermal decomposition.  May cause skin irritation. May cause eye irritation.

#### Potential Health Effects

Primary Routes of Entry

: Eye contact. Skin contact. Inhalation of vapours or mists.

Accidental ingestion.

#### Acute health effects

Inhalation

REG NOAM 1/6 EN

Axis part Bengrate

#### Material Safety Data Sheet

## G335, PART B



SUBID:000000008580

Print Date 01/31/2006

Version 1 Revision Date 01-30-2006

#### SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

#### Identification of the substance/preparation

Product name

: G335, PART B

**MSDS Number** 

000000008580

Use of the

Photographic fixing concentrate

Substance/Preparation

Product code

LXW6T, LXW7V, LXW8X

Business group

IN

#### Company/Undertaking Identification

Agfa Corporation 100 Challenger Road Ridgefield Park, NJ 07660 U.S.A.

Transport Emergency

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Call CHEMTREC: +1 800 4249300

Health Emergency Phone: +1 303 6235716 Agfa Information Phone: +1 201 4402500

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#### SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

Aqueous photographic fixing concentrate, mainly consisting of:

		CAS-No.	<u>Con</u>	<u>cent</u>	ration [%]
	Aluminium sulphate	10043-01-3	>= 5.0	-	<= 10.0
•	Acetic acid	64-19-7	>= 5.0	-	<= 10.0
•	Water	7732-18-5	>= 80.0	-	<= 100.0

#### **SECTION 3. HAZARDS IDENTIFICATION**

The product as a whole has not been tested. This hazard information is for the individual ingredients.

Emergency Overview	•	
Form	T:	Liquid
Colour	:	Colourless.
Odour	:	Smell of acetic acid
WARNING !		off devine beggins of the most decomposition
		n off during burning or thermal decomposition. n. May cause skin irritation. May cause eye irritation.

#### Potential Health Effects

**Primary Routes of Entry** 

: Eye contact. Skin contact. Inhalation of vapours or mists.

Accidental ingestion.

#### Acute health effects

inhalation

REG\_NOAM 1/6 EN

· Aluminium sulphate

Is expected to be irritating to the respiratory tract with symptoms of coughing, sore throat, and runny nose.

Acetic acid

Is expected to be irritating to the respiratory tract with symptoms of coughing, sore throat, and runny nose.

#### Skin contact

Aluminium sulphate

Can be severely irritating with symptoms of reddening, itching,

swelling, and possible burns.

Acetic acid

: Skin sensitization is rare, but has been reported.

#### Eve contact

Aluminium sulphate

May cause irritation and possible corneal burns due to the reaction of the compound with moisture to form sulfuric acid.

Acetic acid

Overexposure can cause severe irritation resulting in burning, stinging, reddening, tearing, swelling and possible injury to the comea depending on the concentration.

#### Ingestion

· Aluminium sulphate

: May cause irritation or burn the digestive tract.

Acetic acid

: Swallowing high concentrations may cause severe injury.

#### Carcinogenicity

The components of this product are not listed by NTP, IARC or regulated as a carcinogen by OSHA.

#### **SECTION 4. FIRST AID MEASURES**

Eye contact

Rinse thoroughly with plenty of water for at least 15 minutes

and consult a physician.

Skin contact

: Wash immediately with plenty of water and soap. If symptoms

persist, seek medical advice.

Ingestion Inhalation

Rinse mouth with plenty of water. Seek medical advice.
Take person to fresh air. If necessary, seek medical advice.

#### **SECTION 5. FIRE-FIGHTING MEASURES**

Special protective equipment

for fire-fighters

Additional advice

Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

Product is not combustible.

#### SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Environmental precautions

See section 8.

For waste disposal see section 13.

Methods for cleaning up

Dike the spill if necessary. Soak up with absorbent material.

Collect large spills into a properly labelled and sealable

container. Prevent release into the drain, soil or surface water.

Additional advice

Wash away residues with plenty of water.

#### **SECTION 7. HANDLING AND STORAGE**

#### Handling

Advice on protection against fire and explosion

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No special protective measures against fire and explosion required.

#### Storage

Advice on common storage

Requirements for storage areas and containers

Store away from strong alkalis.

Keep container tightly closed. Protect from direct sunlight.

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#### SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

#### Exposure Limit Values (US)

Components	CAS-No.	Values	Туре	Revision Date	Basis
Acetic acid	64-19-7	10 ppm 15 ppm 25 mg/m3 25 mg/m3	TWA STEL PEL TWA	2002 2002 06 1993 1989	ACGIH ACGIH OSHA Z1 OSHA Z1A

**Exposure controls** 

Observe normal precautions when handling chemicals. Avoid Hygiene measures

inhaling vapour. Keep away from foodstuffs, drinks and tobacco.

: Appropriate respiratory protection and/or exhaust locally. Respiratory protection

Under normal conditions of use, respirator protection is not required. If respirators are used, institute a program in accordance with OSHA standard 29CFR10110.134.

Hand protection : Use chemical resistant gloves. In case of prolonged immersion

or frequently repeated contact use gloves made of the materials: butyl rubber (thickness >= 0.36 mm, breakthrough

time > 480 min), nitrile rubber (thickness >= 0.38 mm, breakthrough time > 480 min) or neoprene (thickness >= 0.65 mm, breakthrough time > 240 min). For intermittent splash protection corresponding gloves with breakthrough times > 60

min can be used. Avoid gloves made of: natural latex.

Eye protection

Personal protective

Safety glasses. Employees should wash their hands and face before eating, equipment

drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product. Emergency showers

and eye wash stations should be available.

#### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form

Colour

Liquid Colourless.

Odour

Smell of acetic acid

Relative density

1.097 at 20 °C (68 °F)

pH (25 °C, 77 °F)

2.1

Melting point/range

< 0 °C (< 32 °F)

Boiling point/range

> 100 °C (> 212 °F)

Relative vapour density

Not applicable

VOC content

5.2 %

VOC content excluding water

#### **SECTION 10. STABILITY AND REACTIVITY**

Stability

Hazardous decomposition

Hazardous decomposition products

products

Thermal decomposition

None

Conditions to avoid

Not applicable

Avoid contact with strong alkalis. Remove all chemicals and rinse the processing tanks thoroughly with water before using

The product is stable under normal conditions of storage and use.

any cleansing products.

#### **SECTION 11. TOXICOLOGICAL INFORMATION**

Toxicity data specific for individual ingredients in their pure state:

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Acute oral toxicity

Aluminium sulphate : LD50 rat > 5,000 mg/kg
 Acetic acid : LD50 rat 3,310 mg/kg

Acute inhalation toxicity

Acetic acid : LC50 rat 11.4 mg/l/ 4 h

Acute dermal toxicity

Acetic acid : LD50 rabbit 1,060 mg/kg

#### SECTION 12. ECOLOGICAL INFORMATION

#### Elimination information (persistence and degradability)

Biodegradation

Acetic acid : OECD 301D Assessment of biological degradability

99 % after 30 d

**Ecotoxicity effects** 

Ecotoxicity data specific for individual ingredients in their pure state:

Toxicity to fish

• Acetic acid : Species: Pimephales promelas (fathead minnow)

LC50: 88 mg/l/ 96 h

Toxicity to daphnia

Acetic acid
 Species: Daphnia magna (water flea)

EC50: 47 mg/l/ 24 h

Toxicity to algae

• Acetic acid : Species: Scenedesmus quadricauda (algae)

EC10: 4,000 mg/l/ 8 d

Toxicity to bacteria

• Acetic acid : Species: Pseudomonas putida (bacteria)

EC10: 2,850 mg/l/ 16 h

Further information on ecology

Biochemical oxygen demand :

within 5 days (BOD5)

51,500 mg/l

Chemical Oxygen Demand

: 72,700 mg/l

(COD)

#### **SECTION 13. DISPOSAL CONSIDERATIONS**

#### Waste disposal methods

Environmental regulations, discharge of chemicals and washwater, waste treatment and disposal conditions of chemicals and their packaging may vary from one country to another. The relevant local regulations should be consulted. When this product or its contaminated packaging has to be removed as waste, contact an authorized waste contractor. May be discharged to drain if local regulations permit.

#### US. RCRA Hazardous Waste Classification (40 CFR 261)

When discarded in its purchased form, this product meets the criteria of corrosivity, and should be managed as a hazardous waste (EPA Hazardous Waste Number D002).

#### **SECTION 14. TRANSPORT INFORMATION**

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#### SECTION 15. REGULATORY INFORMATION

#### US. Toxic Substances Control Act (TSCA)

All of the components of this product are listed on the TSCA Inventory.

#### US. SARA 311/312 Hazard Categories

Immediate Health Hazard.

#### US. EPA CERCLA Hazardous Substances (40 CFR 302)

Aluminium sulphate

Reportable quantity: 5,000 lbs

Reportable quantity: 5,000 lbs

US. California Prop. 65

Acetic acid

This product does not contain any chemicals known to State of California to cause cancer, birth defects or any other harm.

#### State Right-to-Know Information

The following chemicals are specifically listed by individual states. Other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

## US. Massachusetts Commonwealth's Right-to-Know Law (Appendix A to 105 Code of Massachusetts Regulations Section 670.000)

		<u>CAS-No.</u>		Concentration [%]		
•	Aluminium sulphate	10043-01-3	>= 5.0 -	<= 10.0		
•	Acetic acid	64-19-7	>= 5.0 -	<= 10.0		

## US. New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5)

		CAS-No.	Concentration [%]		
•	Aluminium sulphate	1 <b>0043-01-3</b>	>= 5.0 -	<= 10.0	
•	Acetic acid	64-19-7	>= 5.0 -	<= 10.0	

#### US. Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323)

		<u>CAS-No.</u>	Concentration [%]			
•	Aluminium sulphate	10043-01-3	>= 5.0 -	<= 10.0		
•	Acetic acid	64-19-7	>= 5.0 -	<= 10.0		

## US. Rhode Island Hazardous Substances Right-to-Know Act (R.I. Gen. Laws Section 28-21-1 et. seq.)

		<u>CAS-No.</u>	<u>CAS-No.</u> <u>C</u>		centr	ation [%]
•	Acetic acid	64-19-7	>=	5.0	-	<= 10.0

US. Massachusetts, New Jersey, Pennsylvania or Rhode Island Right to Know Substance Lists: See Section 2.

#### Canadian WHMIS Classification

D2B : Toxic Material Causing Other Toxic Effects

E : Corrosive Material

#### Canadian Environmental Protection Act (CEPA)

All components of this product are on the Canadian DSL list.

#### SECTION 16. OTHER INFORMATION

#### **US. HMIS Rating**

	•	
Health	: 3	
REG_NOAM	5/6	EN

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Flammability	:	0
Reactivity	:	0

(0 = Minimal, 1 = Slight, 2 = Moderate, 3 = Serious, 4 = Severe)

#### US. NFPA 704M Rating

Health	:	2
Flammability	:	0
Reactivity		0

(0 = Insignificant, 1 = Slight, 2 = Moderate, 3 = High, 4 = Extreme)

Agfa Corporation's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by Agfa Corporation as a customer service.

This MSDS is replacing Agfa MSDS number 079TB.004

This information is furnished without warranty, expressed or implied, and is believed to be accurate to the best knowledge of Agfa Corporation. The data on this MSDS relates only to the specific material designated herein. Agfa Corporation assumes no legal responsibility for use or reliance upon these data.

REG\_NOAM 6/6 EN

# FAX SHEET

TO: Kicky Perkins	
COMPANY: AXIS	
CUMPANY:	
FAX: 936-447-2003	
DATE: 12-18-07	
NUMBER OF PAGES INCLUDING COVER:	7
RE: fire part B MSDS	

Glenda Richardson

A.X.I.S Inc.

AMERICAN X-RAY & INSPECTION SERVICES, INC.

1528 OLIVER \*MIDLAND, TX. 79701

432-296-1127 CELL\* 432-682-6600 OFFICE\*432-682-6606 FAX

ANIS (FIXER

#### Material Safety Data Sheet



## G335 (READY FOR USE)

SUBID:000000008581

Version 1

Revision Date 01-30-2006

Print Date 01/31/2006

#### SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

#### Identification of the substance/preparation

Product name

G335 (READY FOR USE)

MSDS Number

000000008581

Use of the

000000000000

Substance/Preparation

Photographic fixing solution

Product code

LXW6T, LXW7V, LXW8X

Business group

IM

Company/Undertaking Identification

Agfa Corporation 100 Challenger Road Ridgefield Park, NJ 07660 U.S.A.

Transport Emergency

Non-transportation

Call CHEMTREC : +1 800 4249300

Health Emergency Phone: +1 303 6235716

International : +1 703 5273887

Agfa Information Phone: +1 201 4402500

#### SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

Aqueous photographic fixing solution, mainly consisting of:

		CAS-No.	Concentration [%]		ration [%]
•	Ammonium thiosulphate	7783-18-8	>= 10.0	-	<= 20.0
•	Sodium sulphite	7757-83-7	>= 1.0	-	<= 5.0
	Boric acid	10043-35-3	>=		< 1.0
•	Water	7732-18-5	>= 80.0	-	<= 100.0

#### SECTION 3. HAZARDS IDENTIFICATION

The product as a whole has not been tested. This hazard information is for the individual ingredients.

Emergency Overview		
Form		Liquid
Colour		Colourless.
Odour	:	Slightly pungent smell
WARNING !		
Irritating gases/fumes n	nay be given	off during burning or thermal decomposition.
May cause respiratory t	ract irritation	. May cause allergic respiratory reaction. May cause skin action. May cause eye irritation.

#### Potential Health Effects

Primary Routes of Entry

: Eye contact. Skin contact. Inhalation of vapours or mists.

Accidental ingestion.

#### Acute health effects

inhalation		
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Dec 19 2007 7:41PM HP LASERJET FAX

Axis (Pixer

### Material Safety Data Sheet



## G335 (READY FOR USE)

SUBID:000000008581

Version 1

Revision Date 01-30-2006

Print Date 01/31/2006

#### SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

#### Identification of the substance/preparation

Product name

G335 (READY FOR USE)

MSDS Number

000000008581

Use of the

Substance/Preparation

Photographic fixing solution

Product code

LXW6T, LXW7V, LXW8X

**Business** group

#### Company/Undertaking Identification

Agfa Corporation 100 Challenger Road Ridgefield Park, NJ 07660 U.S.A.

Transport Emergency

Non-transportation

Call CHEMTREC: +1 800 4249300

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#### SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

Aqueous photographic fixing solution, mainly consisting of:

	CAS-No.	<u>Con</u>	cent	ration [%]
<ul> <li>Ammonium thiosulphate</li> </ul>	7783-18-8	>= 10.0	-	<= 20.0
<ul> <li>Sodium sulphite</li> </ul>	7757-83-7	>= 1.0	-	<= 5.0
<ul> <li>Boric acid</li> </ul>	10043-35-3	>=		< 1.0
• Water	7732-18-5	>= 80.0	-	<= 100.0

#### **SECTION 3. HAZARDS IDENTIFICATION**

The product as a whole has not been tested. This hazard information is for the individual ingredients.

Emergency Overview		
Form	1:	Liquid
Colour	:	Colourless.
Odour	:	Slightly pungent smell
WARNING!		
Irritating gases/fumes may b	e given	off during burning or thermal decomposition.
May cause respiratory tract	irritation	n. May cause allergic respiratory reaction. May cause skin action. May cause eye irritation.

#### **Potential Health Effects**

Primary Routes of Entry

: Eye contact. Skin contact. Inhalation of vapours or mists.

Accidental ingestion.

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#### Acute health effects

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Ammonium thiosulphate

Is expected to be irritating to the respiratory tract with symptoms of coughing, sore throat, and runny nose.

Sodium sulphite

Is expected to be irritating to the respiratory tract with symptoms of coughing, sore throat, and runny nose. May cause an allergic reaction in some asthmatics and sulfite sensitive individuals. Possible symptoms include

bronchoconstriction, sweating, flushing, hives, rapid heart rate,

decreased blood pressure and anaphylaxis.

Boric acid

Is expected to be irritating to the respiratory tract with symptoms of coughing, sore throat, and runny nose.

#### Skin contact

Ammonium thiosulphate

Sodium sulphite

May be irritating to the skin with symptoms of reddening and itching.

May be irritating to the skin with symptoms of reddening and itching. May cause skin sensitization with symptoms of rash,

itching, hives, and swelling.

Boric acid

May be irritating to the skin with symptoms of reddening and itching.

#### Eye contact

Ammonium thiosulphate

May be irritating to the eyes with symptoms of reddening,

tearing and stinging.

Sodium sulphite

May be irritating to the eyes with symptoms of reddening,

tearing and stinging.

Boric acid

May be irritating to the eyes with symptoms of reddening,

tearing and stinging.

#### Ingestion

Ammonium thiosulphate

May cause gastrointestinal irritation.

Sodium sulphite

May cause gastrointestinal irritation.

Boric acid

May cause damage to the gastrointestinal tract with pain, nausea, vomiting, diarrhea, headache, confusion and drowsiness. Ingestion causes damage of central nervous

system, liver, kidneys, blood and bone marrow.

#### Chronic health hazards

#### Inhalation

Sodium sulphite

Repeated or prolonged exposure may cause an allergic respiratory reaction in previously exposed individuals.

Boric acid

Repeated or prolonged inhalation may cause pain, nausea, vomiting, diarrhea, headache, confusion and drowsiness.

#### Skin contact

Sodium sulphite

Repeated or prolonged skin contact may cause allergic

reactions with susceptible persons.

Boric acid

Chronic intensive skin contact may cause dermatitis.

#### Ingestion

Boric acid

May cause effects similar to those mentioned in acute ingestion. Additional symptoms may include loss of appetite, reddening of the tongue, loss of hair and kidney injury.

#### Carcinogenicity

The components of this product are not listed by NTP, IARC or regulated as a carcinogen by OSHA.

#### **SECTION 4. FIRST AID MEASURES**

Eye contact

Rinse thoroughly with plenty of water for at least 15 minutes

and consult a physician.

Skin contact

Wash immediately with plenty of water and soap. If symptoms

persist, seek medical advice.

Ingestion

Rinse mouth with plenty of water. Seek medical advice.

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Inhalation

Take person to fresh air. If necessary, seek medical advice.

#### SECTION 5. FIRE-FIGHTING MEASURES

Specific hazards during fire

fighting

Special protective equipment

for fire-fighters Additional advice . . . .

In case of fire, thermal decomposition with emission of hazardous

fumes is possible (e.g. sulphur dioxide and ammonia).

Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating furnes.

Product is not combustible.

#### SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Environmental precautions

Methods for cleaning up

: See section 8.

For waste disposal see section 13.

Dike the spill if necessary. Soak up with absorbent material. Collect large spills into a properly labelled and sealable container. Prevent release into the drain, soil or surface water.

Additional advice

Wash away residues with plenty of water.

#### SECTION 7. HANDLING AND STORAGE

#### Handling

Advice on protection against

fire and explosion

No special protective measures against fire and explosion

required.

#### Storage

Advice on common storage

Store away from strong acids, strong alkalis and strong oxidizing

agents

Requirements for storage areas and containers

Keep container tightly closed. Protect from direct sunlight.

#### SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

#### Exposure Limit Values (US)

Components	CAS-No.	Values	Туре	Revision Date	Basis
Acetic acid	64-19-7	10 ppm 15 ppm 25 mg/m3 25 mg/m3	TWA STEL PEL TWA	2002 2002 06 1993 1989	ACGIH ACGIH OSHA Z1 OSHA Z1A

#### **Exposure controls**

Hygiene measures

: Observe normal precautions when handling chemicals. Avoid

inhaling vapour. Keep away from foodstuffs, drinks and

tobacco

Respiratory protection

Appropriate respiratory protection and/or exhaust locally. Under normal conditions of use, respirator protection is not required. If respirators are used, institute a program in accordance with OSHA standard 29CFR10110.134.

Hand protection

Use chemical resistant gloves. In case of prolonged immersion

or frequently repeated contact use gloves made of the materials: butyl rubber (thickness >= 0.36 mm, breakthrough time > 480 min), nitrile rubber (thickness >= 0.38 mm, breakthrough time > 480 min) or negorene (thickness >= 0.65

breakthrough time > 480 min) or neoprene (thickness >= 0.65 mm, breakthrough time > 240 min). For intermittent splash protection corresponding gloves with breakthrough times > 60 min can be used. Avoid gloves made of: natural latex.

Eye protection : Safety glasses.

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Personal protective equipment

Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product. Emergency showers and eye wash stations should be

available.

#### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form Colour Liquid

Colourless.

Odour

Slightly pungent smell

Vapour pressure Relative density

23.00 hPa at 20 °C (68 °F) 1.105 at 20 °C (68 °F)

pH (25 °C, 77 °F)

Melting point/range Boiling point/range <0°C (< 32 °F) > 100 °C (> 212 °F)

Relative vapour density

Not applicable

VOC content

0.0 %

VOC content excluding water

#### SECTION 10. STABILITY AND REACTIVITY

**Stability** 

The product is stable under normal conditions of storage and use.

Hazardous decomposition

Hazardous decomposition products Sulphur dioxide and ammonia

products Thermal decomposition

Not applicable

Conditions to avoid

Avoid contact with strong acids, strong alkalis and strong oxidizing

agents. Remove all chemicals and rinse the processing tanks thoroughly with water before using any cleansing products.

#### SECTION 11. TOXICOLOGICAL INFORMATION

Toxicity data specific for individual ingredients in their pure state:

#### Acute oral toxicity

Ammonium thiosulphate

LD50 rat

2,890 mg/kg

Sodium sulphite

LD50 rat

3,560 mg/kg

Boric acid

LD50 rat

2,660 mg/kg

#### Acute dermal toxicity

Boric acid

: LD50 rat

> 2,000 mg/kg

#### Other information

In normal conditions of use, sulphur dioxide may be set free in concentrations well below the threshold limit value (TLV) of 2 ppm. Asthmatic individuals, however, may possibly be sensitive to concentrations as low as 0.1 ppm.

#### **SECTION 12. ECOLOGICAL INFORMATION**

#### **Ecotoxicity effects**

Ecotoxicity data specific for individual ingredients in their pure state:

#### Toxicity to fish

· Ammonium thiosulphate

Species: Poecilia reticulata (guppy)

LC50: > 200 mg/l/ 48 h

· Sodium sulphite

Species: Leuciscus idus (golden orfe)

LC50: > 220 mg/l/ 96 h

Boric acid

Species: Carassius auratus (goldfish)

LC50: 178 mg/V 72 h

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#### Toxicity to daphnia

· Sodium sulphite

Species: Daphnia magna (water flea)

EC50: 273 mg/V 48 h

Boric acid

Species: Daphnia magna (water flea)

EC50: 133 mg/l/ 48 h

#### Toxicity to bacteria

· Sodium sulphite

: Species: Pseudomonas putida (bacteria)

EC50: 770 mg/l/ 17 h

Boric acid

Species: Pseudomonas putida (bacteria)

EC50: > 1,000 mg/l/ 3 h

#### **SECTION 13. DISPOSAL CONSIDERATIONS**

#### Waste disposal methods

Environmental regulations, discharge of chemicals and washwater, waste treatment and disposal conditions of chemicals and their packaging may vary from one country to another. The relevant local regulations should be consulted. When this product or its contaminated packaging has to be removed as waste, contact an authorized waste contractor. As the used product contains water soluble silver complexes, it is recommended to subject it to a silver recovery process prior to disposal. May be discharged to drain if local regulations permit.

#### US. RCRA Hazardous Waste Classification (40 CFR 261)

If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

#### **SECTION 14. TRANSPORT INFORMATION**

Not dangerous cargo. Keep separated from food- and drinkstuffs.

#### SECTION 15. REGULATORY INFORMATION

#### **US. Toxic Substances Control Act (TSCA)**

All of the components of this product are listed on the TSCA Inventory.

#### **US. OSHA Classification**

This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

#### US. SARA 311/312 Hazard Categories

Immediate Health Hazard. Delayed Health Hazard.

#### US. California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects or any other harm.

#### State Right-to-Know Information

The following chemicals are specifically listed by individual states. Other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

## US. Massachusetts Commonwealth's Right-to-Know Law (Appendix A to 105 Code of Massachusetts Regulations Section 670.000)

CAS-No.

Concentration [%]

Ammonium thiosulphate

7783-18-8

- <= 20.0

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>= 10.0

Dec 19 2007 7:41PM

US. New Jersey Worker and Community Right-to-Know Act (New Jersey Statute Annotated Section 34:5A-5)

CAS-No.

Concentration [%]

Ammonium thiosulphate

7783-18-8

>= 10.0 -

<= 20.0

US. Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323)

CAS-No.

Concentration [%]

Ammonium thiosulphate

7783-18-8

>= 10.0 -

<≈ 20.0

US. Massachusetts, New Jersey, Pennsylvania or Rhode Island Right to Know Substance Lists: See Section 2.

#### Canadian WHMIS Classification

D2A : Very Toxic Material Causing Other Toxic Effects

D2B : Toxic Material Causing Other Toxic Effects

#### Canadian Environmental Protection Act (CEPA)

All components of this product are on the Canadian DSL list.

#### **SECTION 16. OTHER INFORMATION**

#### US. HMIS Rating

Health	2
Flammability	 0
Reactivity	0

(0 = Minimal, 1 = Slight, 2 = Moderate, 3 = Serious, 4 = Severe)

#### **US. NFPA 704M Rating**

Health		2
Flammability	:	0
Reactivity	;	0

(0 = Insignificant, 1 = Slight, 2 = Moderate, 3 = High, 4 = Extreme)

Agfa Corporation's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by Agfa Corporation as a customer service.

This MSDS is replacing Agfa MSDS number 079TRFU.004

This information is furnished without warranty, expressed or implied, and is believed to be accurate to the best knowledge of Agfa Corporation. The data on this MSDS relates only to the specific material designated herein. Agfa Corporation assumes no legal responsibility for use or reliance upon these data.

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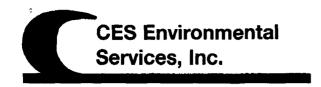
## FAX SHEET

TO: Ricky terkins	
COMPANY: AXIS	
FAX: 936- 447-2003	
DATE: 12-12-09	
•	
NUMBER OF PAGES INCLUDING COVER:	<b>9</b> +
RE: five msps	
()	

## Glenda Richardson

A.X.I.S Inc. AMERICAN X-RAY & INSPECTION SERVICES, INC. 1528 OLIVER \*MIDLAND, TX. 79701 432-296-1127 CELL\* 432-682-6600 OFFICE\*432-682-6606 FAX Balver Petrolite-cotte

EPAHO048002129



4904 Griggs Road Houston, TX 77021 Tel. (713) 676-1460 Fax. (713) 676-1676

Date: 11/20/08

To: Gary Brauckman

Cc: Matt Bowman, Gary Peterson, Prabhaker,

Matt Moser, Joe Camp, Clint Hopkins

From: Miles Root Lab Memo: 08-204

Subject: Baker Petrolite Evaluation 1108-53

A sample of oil from Baker Petrolite has been evaluated for use at CES. This sample is evaluation 1108-53. Overall, this oil looks good for blending with black oil. The potential volume of this stream is 5000 gallons every two weeks.

This oil comes from line flushes and is said to contain xylenes, ethyl benzene and other non halogenated organics. It has an API of 31 and chlor-d-tect of only 200. It blends well with black oil and may even be used to cut asphalt sludge, which was tested with a sample provided by Gary. Gary would like this material to come in as cutter stock "restricted light ends" and this material should be just fine for that purpose. This particular sample has a "stickiness" feel to it that disappears when diluted with oil. Most likely due to whatever was in the latest line flush. This is not an issue with any of our applications. The table below summarizes the analytical testing.

Baker Petrolite	=
Evaluation 1108-53	
API Gravity	31
Black Oil Blendability	ОК
Chlor-d-tect, ppm	200
Water, vol%	0.0

#### **Gary Brauckman**

From:

Miles Root

Sent:

Thursday, November 20, 2008 12:05 PM

To:

Matt Bowman; Gary Brauckman

Cc:

Gary Peterson; Prabhaker Thangudu; Joe Camp; Clinton Hopkins; Matt Moser

Subject:

RE: Baker Petrolite Evaluation 1108-53

This material boils at around 340 deg F, so there is no 350 deg F test point.

Miles

From: Matt Bowman

Sent: Thursday, November 20, 2008 10:58 AM

To: Miles Root; Gary Brauckman

Cc: Gary Peterson; Prabhaker Thangudu; Joe Camp; Clinton Hopkins; Matt Moser

Subject: RE: Baker Petrolite Evaluation 1108-53

Gary, it looks as though this material might work well as a cutter stock for thick sludge oils. I would like for you to clear one further obstacle. Since it is likely that this cutter will be used to cut very thick oils, those thick oils may end up in something like a #6 fuel oil somewhere down the line. Consequently, please be sure that, when heated to say 350 degrees F that we do not see any resin or polymers remaining as this might cause problems in an engine.

Thanks, Matt

From: Miles Root

Sent: Thursday, November 20, 2008 7:57 AM

To: Gary Brauckman

Cc: Matt Bowman; Gary Peterson; Prabhaker Thangudu; Joe Camp; Clinton Hopkins; Matt Moser

Subject: Baker Petrolite Evaluation 1108-53

The attached memo details the work on Baker Petrolite evaluation 1108-53.

Miles Root

Laboratory Research and Development Specialist

CES Environmental Services, Inc.

4904 Griggs Road

Houston, TX 77021 Cell: 832-607-6678

Fax: 713-748-8664

#### **Gary Brauckman**

From:

Miles Root

Sent:

Sunday, November 23, 2008 8:45 AM

To:

Matt Bowman; Gary Brauckman

Cc: Subject: Gary Peterson; Prabhaker Thangudu; Joe Camp; Clinton Hopkins; Matt Moser

RE: Baker Petrolite Evaluation 1108-53

No polymerization. When you boil it dry it does have a residue.

Miler

From: Matt Bowman

Sent: Thursday, November 20, 2008 5:03 PM

To: Miles Root; Gary Brauckman

Cc: Gary Peterson; Prabhaker Thangudu; Joe Camp; Clinton Hopkins; Matt Moser

Subject: RE: Baker Petrolite Evaluation 1108-53

Miles,

Did you notice any polymerization issues?

Garv.

Please check with your customer to validate no potential for gumming up or polymerization.....

From: Miles Root

Sent: Thursday, November 20, 2008 12:05 PM

To: Matt Bowman; Gary Brauckman

Cc: Gary Peterson; Prabhaker Thangudu; Joe Camp; Clinton Hopkins; Matt Moser

Subject: RE: Baker Petrolite Evaluation 1108-53

This material boils at around 340 deg F, so there is no 350 deg F test point.

Miles

From: Matt Bowman

Sent: Thursday, November 20, 2008 10:58 AM

To: Miles Root; Gary Brauckman

Cc: Gary Peterson; Prabhaker Thangudu; Joe Camp; Clinton Hopkins; Matt Moser

Subject: RE: Baker Petrolite Evaluation 1108-53

Gary, it looks as though this material might work well as a cutter stock for thick sludge oils. I would like for you to clear one further obstacle. Since it is likely that this cutter will be used to cut very thick oils, those thick oils may end up in something like a #6 fuel oil somewhere down the line. Consequently, please be sure that, when heated to say 350 degrees F that we do not see any resin or polymers remaining as this might cause problems in an engine.

Thanks, Matt

From: Miles Root

Sent: Thursday, November 20, 2008 7:57 AM

To: Gary Brauckman

Cc: Matt Bowman; Gary Peterson; Prabhaker Thangudu; Joe Camp; Clinton Hopkins; Matt Moser

**Subject:** Baker Petrolite Evaluation 1108-53

The attached memo details the work on Baker Petrolite evaluation 1108-53.

**CES Environmental Services Inc.** 4904 Griggs Road Houston, TX 77021

Phone:

713-676-1460

Fax:

713-676-1676

November 24, 2008

**Baker Petrolite** 13200 Bay Park Road Pasadena, TX 77507

Attn: Jerry Grammas

Management of Cutter Stock B

Dear Ms. Grammas:

CES Environmental Services, Inc. has completed the evaluation of the sample of Baker Petrolite Cutter Stock B. Based on the evaluation the material is suitable as a cutter stock (restricted light ends) for CES to utilize in the thinning of heavy oils. CES can and will be able to receive this material as a product utilizing a BOL as the shipping document. In response to the bid solicitation, CES will address the six questions requested:

1 and 2.

Postingful Waterborne ; Number 6, 3% sulfur

Pricing for this material will be subject to review every six months or when substantial changes in the market justify immediate evaluation. Pricing will be based on the lower price of the daily Platts Gulf Coast listing of number 6 fuel oil 3% sulfur and will be converted from the price per barrel (45 gallons) to a price per gallon. CES will offer the customer the Platts daily listing less 20 cents per gallon. As of November 21, 2008 the effective price was listed at \$27.50/bbl or 61 cents per gallon. On that date CES would pay Baker Petrolite 41 cents per gallon.

Transportation pricing will be set on a flat fee of \$280.00 plus applicable fuel surcharges and energy surcharge fee. CES will allow one-hour for loading, any additional time will be billed at our demurrage rate of \$70.00 per hour. Our current fuel surcharge as of the date of this quotation is 27% and the current energy surcharge is 4.9%. Energy surcharges will be based on the total amount of the transportation as well as the quantity of the material times the retaining profit of CES Environmental.

CES Environmental Services, Inc. 4904 Griggs Road

It is our sincere hope that you find our proposed scope of service and associated pricing appealing and will consider utilizing the services offered by CES Environmental Service, Inc. If you have any questions or comments or would like to begin service, please feel free to contact me at 713-417-5737.
Sincerely,
Gary Brauckman Account Manager

Baker Petrolite November 24, 2008 Page 2 of 3

3. Product specifications

CES will allow a maximum of 1% BS& W without penalty. Any BS &W exceeding the allowed limits will incur a surcharge or price reduction of 8 cents per gallon for every 3% increments over the allowed 1% of BS & W.

CES will allow a maximum of 0.3% ash without penalty. Ash contents greater than 0.3% will incur a surcharge of price reduction of 6 cents per gallon for every 0.3% increments over the allowed 0.3% of ash.

Baker Petrolite will be notified of any loads received that would be considered non-conforming based on the sample received and the information provided on the MSDS.

#### 4. Final Outlet or use

CES will receive and utilize this material as a cutter stock for the processing of heavy oils and asphalt type petroleum products. The material will not be direct burn but will be received as restricted light ends for cutter material.

#### 5. Transportation Notification

Under normal working operations 90% of the time CES can provide pick-up of the cutter stock the next working day. CES can guarantee pick-up with a minimum of 48 hour notice.

#### 6. Weekend Pick-up

CES offers weekend and holiday service. On holidays the price will be double time and for weekends excluding Saturday before 12:00 PM the price is time and a half. Saturday loads scheduled prior to 12:00 PM will be billed at the posted rate.

It is my sincere hope that Baker Petrolite finds our proposed services and pricing satisfactory and will consider utilizing the services of CES Environmental. If Baker Petrolite would like to enter into an agreement, please provide me with the information required for completion. If you have any questions or comments, please do not hesitate to give me a call at 713-417-5737.

Sincerely,

Gary Brauckman Account Manager

CES Environmental Services, Inc.

4904 Griggs Road

CES Environmental Services Inc. 4904 Griggs Road Houston, TX 77021

Phone:

713-676-1460

Fax:

713-676-1676

November 25, 2008

Baker Petrolite 13200 Bay Park Road Pasadena, TX 77507

Attn: Jerry Grammas

Re:

Management of Cutter Stock B

Dear Ms. Grammas:

CES Environmental Services, Inc. has completed the evaluation of the sample of Baker Petrolite Cutter Stock B. Based on the evaluation the material is suitable as a cutter stock (restricted light ends) for CES to utilize in the thinning of heavy oils. CES can and will be able to receive this material as a product utilizing a BOL as the shipping document. In response to the bid solicitation, CES will address the six questions requested:

#### Questions 1 and 2: Pricing

Pricing will be based on the lower listed price of the daily Platts Gulf Coast posting for waterborne; number 6, 3% sulfur, fuel oil and will be converted from the price per barrel (45 gallons) to a price per gallon. CES will offer the customer 50% of the Platts daily listing. As of November 21, 2008 the effective price was listed at \$27.50/bbl or 61 cents per gallon. On that date CES would pay Baker Petrolite \$.305 cents per gallon. Pricing for this material will be subject to review every six months or when the specified daily Platts listing exceeds \$55.00/bbl.

Transportation pricing will be set on a flat fee of \$280.00 plus applicable fuel surcharges CES will allow one-hour for loading, any additional time will be billed at our demurrage rate of \$70.00 per hour. Our current fuel surcharge as of the date of this quotation is 27%.

CES Environmental Services, Inc.

4904 Griggs Road

Baker Petrolite November 25, 2008 Page 2 of 3

#### **Question 3: Product specifications**

CES will allow a maximum of 1% solids and rag without penalty. Any solids or rag exceeding the allowed limits will be charged \$1.00 per gallon for the total volume of solids and rag.

CES will allow a maximum of 1.5% ash without penalty. Ash contents greater than 1.5% will incur a surcharge or price reduction of 15 cents per gallon.

CES will allow a maximum of 0.5% water without penalty. Water content greater than 0.5% will be charged 20 cents per gallon of the total volume of water.

Baker Petrolite will be notified of any loads received that would be considered nonconforming based on the sample received and the information provided on the MSDS and profile document.

#### **Question 4:** Final Outlet or Use

CES will receive and utilize this material as a cutter stock for the processing of heavy oils and asphalt type petroleum products. The material will not be direct burn but will be received as restricted light ends for cutter material.

#### **Question 5: Transportation Notification**

Under normal working operations 90% of the time CES can provide pick-up of the cutter stock the next working day. CES can guarantee pick-up with a minimum of 48 hour notice.

#### Question 6: Weekend Pick-up

CES offers weekend and holiday service at an additional cost to the customer (See Below):

#### Loads Scheduled On:

Standard Weekdays and Saturdays before 12:00 PM Saturdays after 12:00 PM and Sundays Holidays Standard Pricing Time and a half Double Time

CES Environmental Services, Inc.

4904 Griggs Road

Baker Petrolite November 25, 2008 Page 3 of 3

It is my sincere hope that Baker Petrolite finds our proposed services and pricing satisfactory and will consider utilizing the services of CES Environmental. If Baker Petrolite would like to enter into an agreement, please provide me with the information required for completion. In the event CES is not the successful bidder, CES would like to remain on your active bidder list for services such as waste disposal, tank and vessel cleaning and product recovery. If you have any questions or comments, please do not hesitate to give me a call at 713-417-5737.

Sincerely,

Gary Brauckman Account Manager



We have available representative samples (MSDS attached in a pdf) of our new CSB hydrocarbon tank (T415) that is fed by our existing reactor wash tanks (T254, T302, T303, T516 and T608) and drum line flush material. Please contact me to make arrangements for you to meet with me and/or pick up your sample. All persons receiving this email request for bid will also receive an identical sample of colleted today (10/13/08).

We anticipate generate 3 to 5 tanker trucks of T415 CSB material a month. There may be some production variation due to scheduled annual plant shutdowns and unanticipated shutdowns due to unforeseen tropical weather. We anticipate increase in production of this material due to plant expansions over the next 1 to 2 years.

I need your bid back to me by noon November 14, 2008 to be considered as our exclusive outlet for our CSB. Please propose:

- 1. The price per gallon you can pay us net -30 days with you providing trucking and transportation.
- 2. If pricing is based on a floating index (i.e. spot price for sweet West Texas Crude) please provide the averaging duration (daily, weekly or month averaging) of the index.
- 3. Describe the product specification requirements of our T415 CSB based on your clients needs and analytical methods we are to run to determine pricing scheme. Product specifications requirements need to spell out the pricing consequences if a spec range is not met and/or alternative outlets.
- 4. Describe the outlet (final use)/intended purpose for our product.
- 5. The time requirements in advance for guaranteed pick up (i.e. request pickup 48 hours in advance).
- 6. Is weekend pickup available? Same timing for scheduling in advance for weekend as with weekday pickup?
- 7. A Master Service Agreement (MSA) in the process of review and insurance provided to corporate, Lacy Rosson (281-275-7354 email <a href="mailto:lacy.rossin@bakerhughes.com">lacy.rossin@bakerhughes.com</a>) by 11/14/08

A few items touched on above may need more clarification. Item 3 details analytical specifications (and methods) that the product will have to meet such as % water, Non-volatiles at 150 F, color, clarity etc... Propose either a sliding scale pricing if product specifications are not met or propose a secondary market pricing.

For Item 4 please provide us with the intended use (both primary and secondary) for our hydrocarbon material. We do not recommend direct fire burning of the T415 CSB because Baker Petrolite does not believe this material would meet the comparable fuels criteria in RCRA.

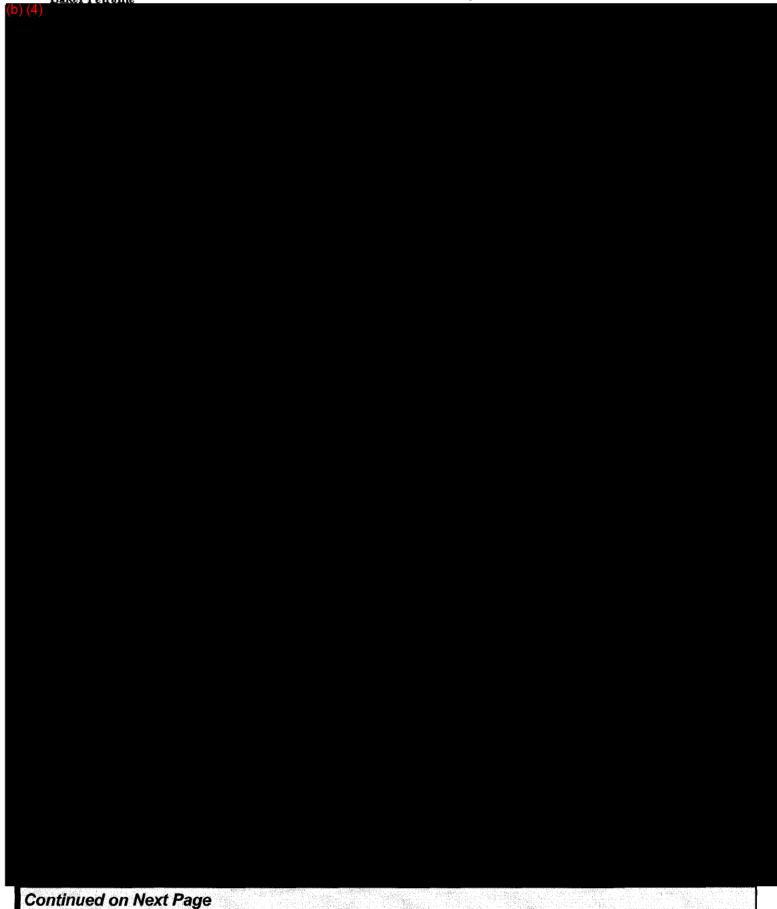
We will evaluate and select the exclusive company to handle our Tank 415 CSB based on what price you can pay us for this material on a per gallon basis, the final use and other criteria as described above. Your bid will not be considered if not received by noon 11/14/2008 and any of the 7 items above are not included in the bid. We will reserve the right to terminate this exclusive contract if at any time at our decision.

If you have additional question or comments please provide them to me in writing or in an email and I will respond to all bidders, so that all parties will be bidding on an equal basis.

Jerry Grammas Baker Petrolite Environmental Engineer Bayport Facility Tel 281-291-3287



## **Material Safety Data Sheet**

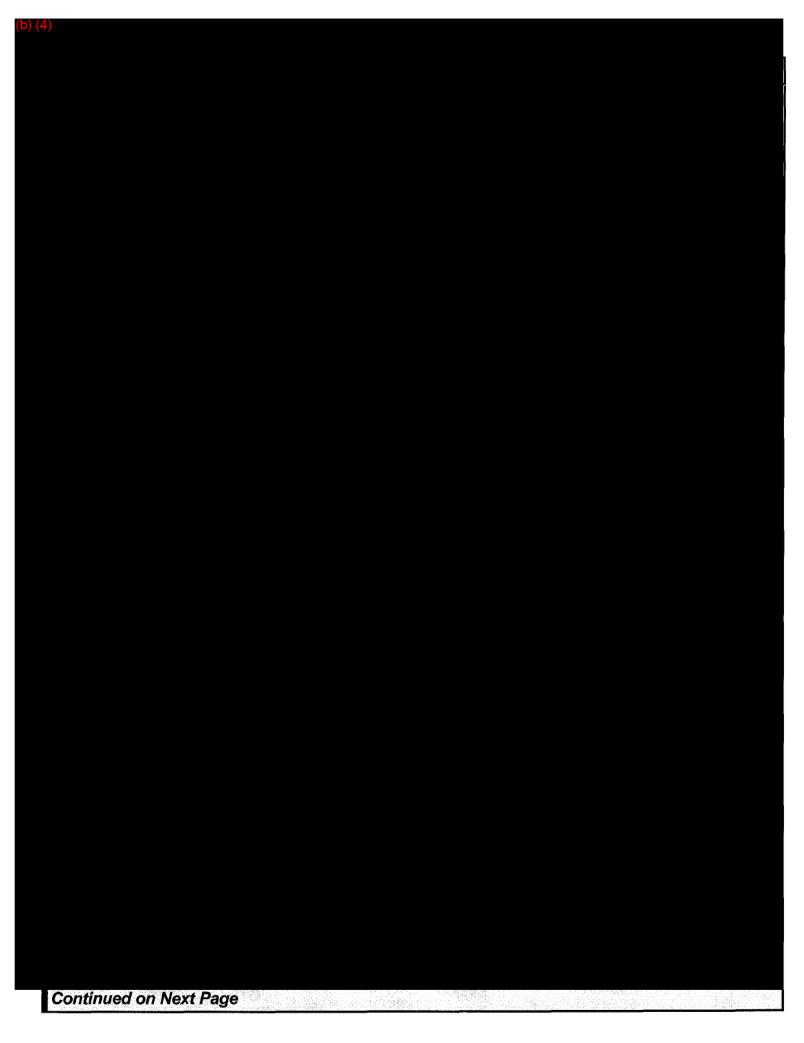


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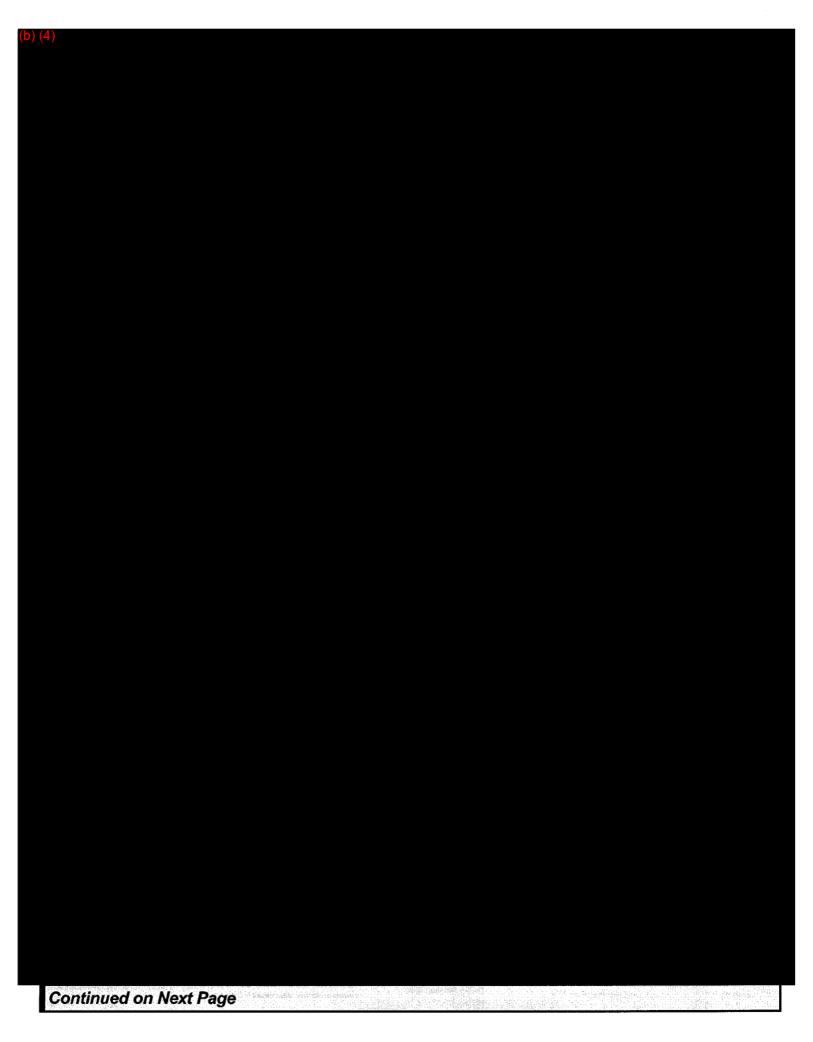
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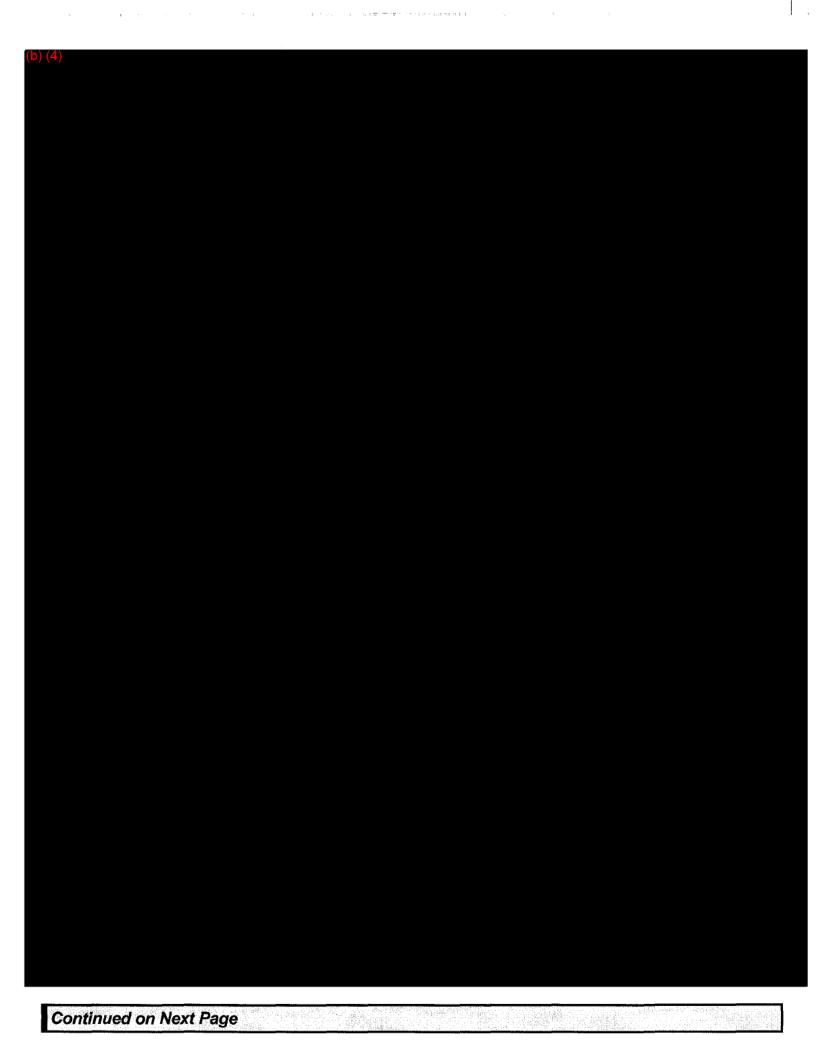
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CSB.pdf (68 KB)

We have available representative samples (MSDS attached in a pdf) of our new CSB hydrocarbon tank (T415) that is fed by our existing reactor wash tanks (T254, T302, T303, T516 and T608) and drum line flush material. Please contact me to make arrangements for you to meet with me and/or pick up your sample. All persons receiving this email request for bid will also receive an identical sample of colleted today (10/13/08).

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I need your bid back to me by noon November 14, 2008 to be considered as our exclusive outlet for our CSB. Please propose:

1. The price per gallon you can pay us net – 30 days with you providing trucking and transportation.

If pricing is based on a floating index (i.e. spot price for sweet West Texas Crude) please provide the averaging duration (daily, weekly or month averaging) of the index.

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4. Describe the outlet (final use)/intended purpose for our product.

5. The time requirements in advance for guaranteed pick up (i.e. request pickup 48 hours in advance).

6. Is weekend pickup available? Same timing for scheduling in advance for weekend as with weekday pickup?

 A Master Service Agreement (MSA) in the process of review and insurance provided to corporate, Lacy Rosson (281-275-7354 email lacy.rossin@bakerhughes.com) by 11/14/08

A few items touched on above may need more clarification. Item 3 details analytical specifications (and methods) that the product will have to meet such as % water, Non-volatiles at 150 F, color, clarity etc... Propose either a sliding scale pricing if product specifications are not met or propose a secondary market pricing.

For Item 4 please provide us with the intended use (both primary and secondary) for our hydrocarbon material. We do not recommend direct fire burning of the T415 CSB because Baker Petrolite does not believe this material would meet the comparable fuels criteria in RCRA.

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High water

used as our internal cutter state per CES requires

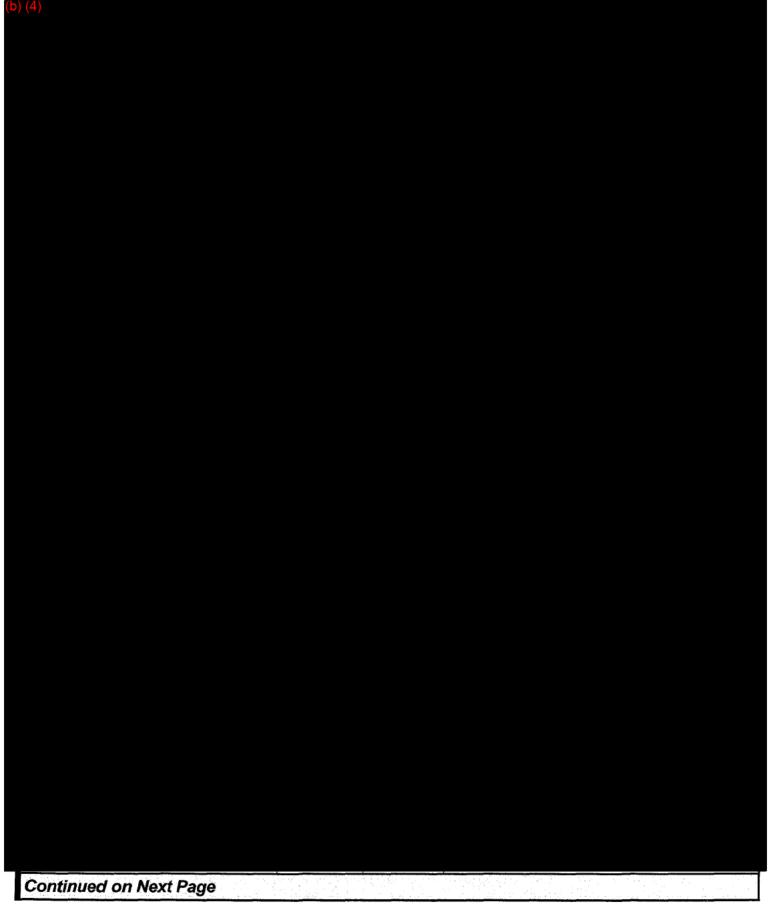
We will evaluate and select the exclusive company to handle our Tank 415 CSB based on what price you can pay us for this material on a per gallon basis, the final use and other criteria as described above. Your bid will not be considered if not received by noon 11/14/2008 and any of the 7 items above are not included in the bid. We will reserve the right to terminate this exclusive contract if at any time at our decision.

If you have additional question or comments please provide them to me in writing or in an email and I will respond to all bidders, so that all parties will be bidding on an equal basis.

Jerry Grammas Baker Petrolite Environmental Engineer Bayport Facility Tel 281-291-3287



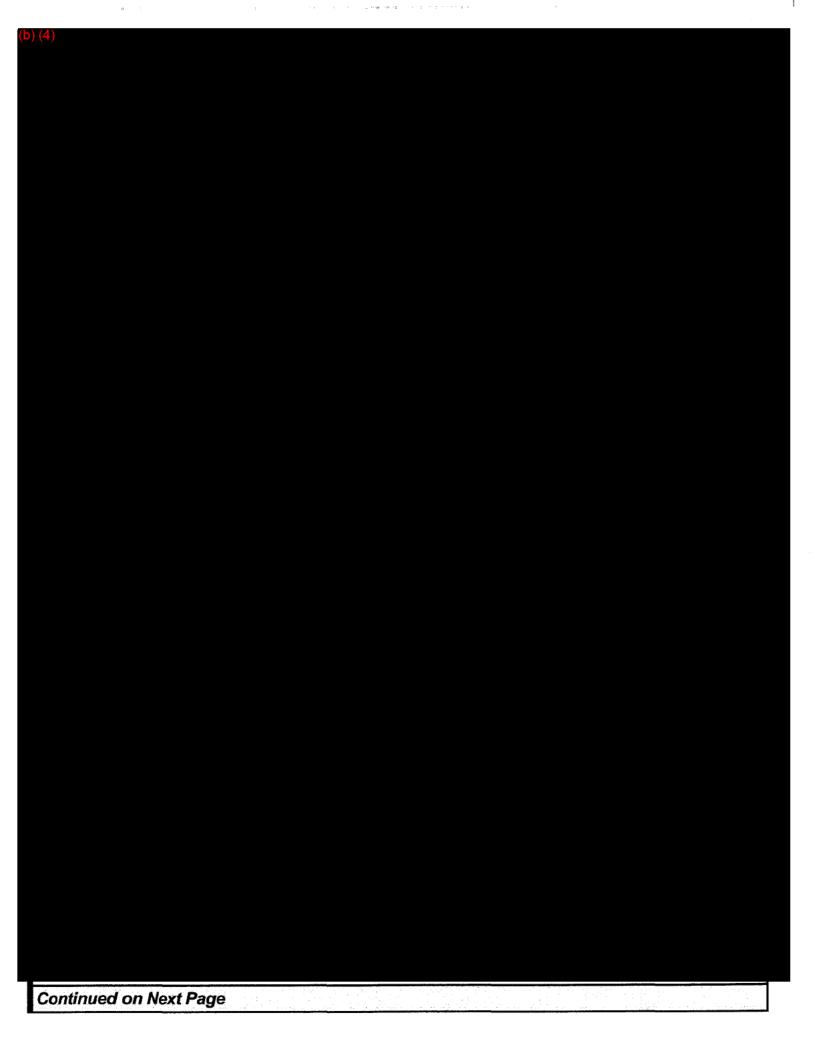
## **Material Safety Data Sheet**

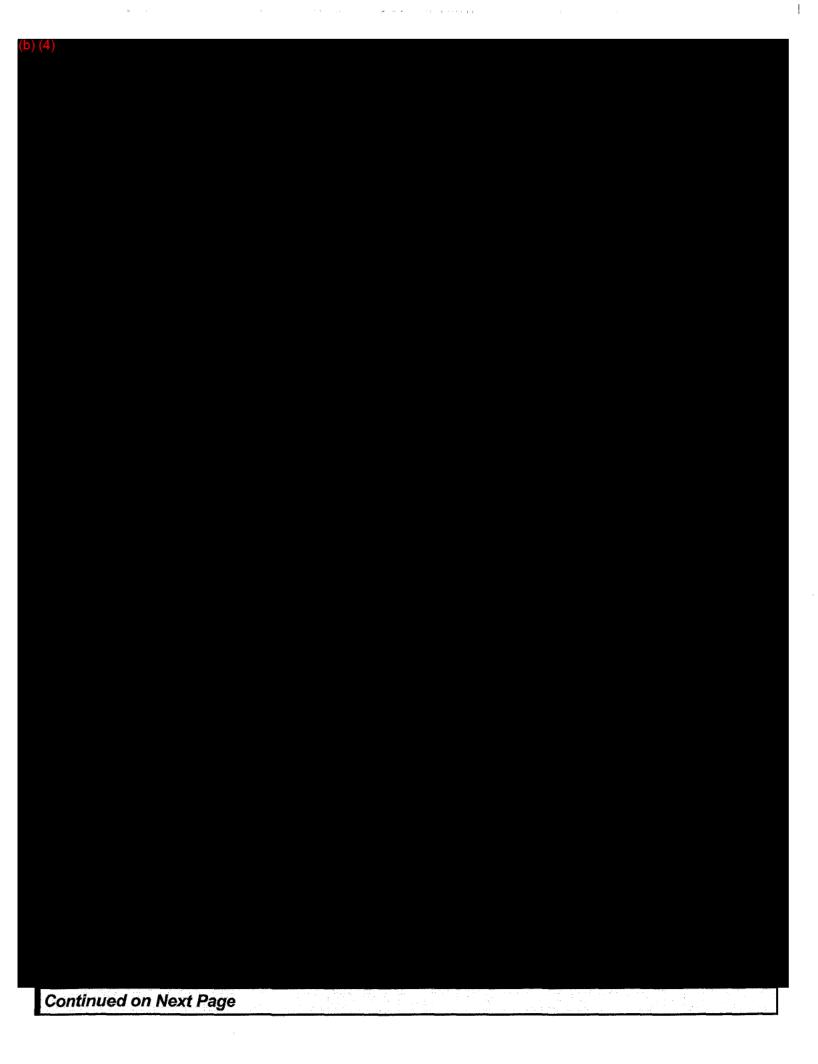


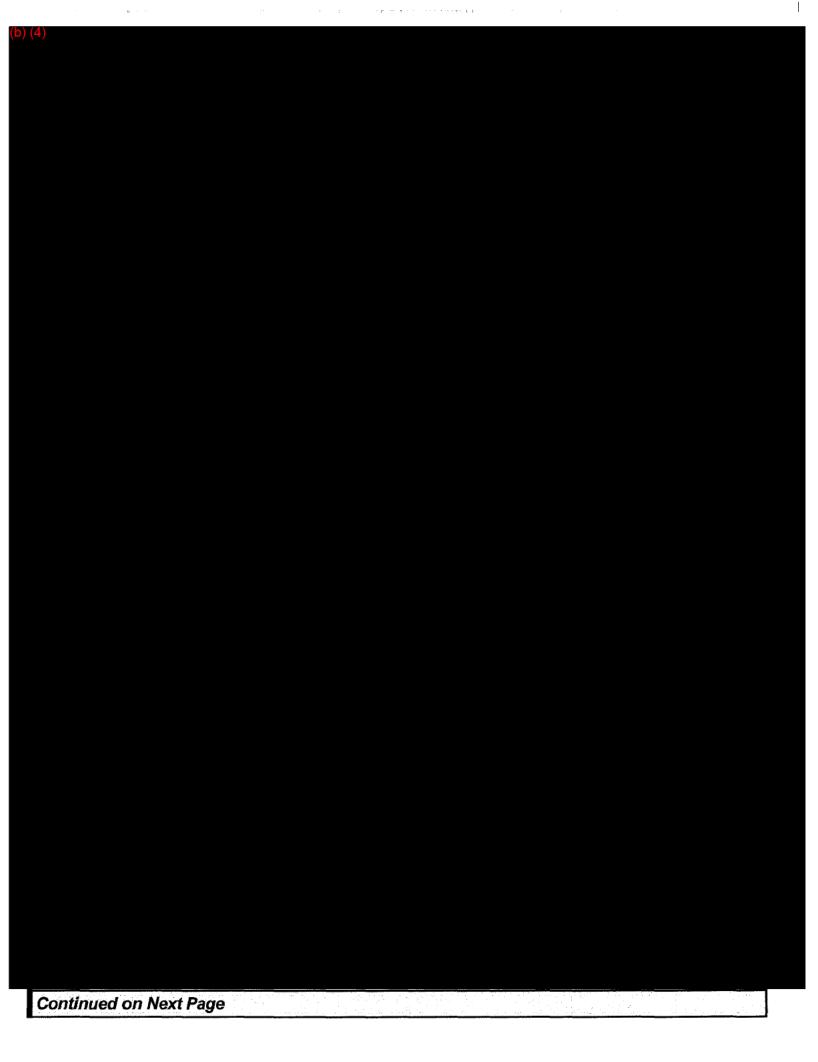


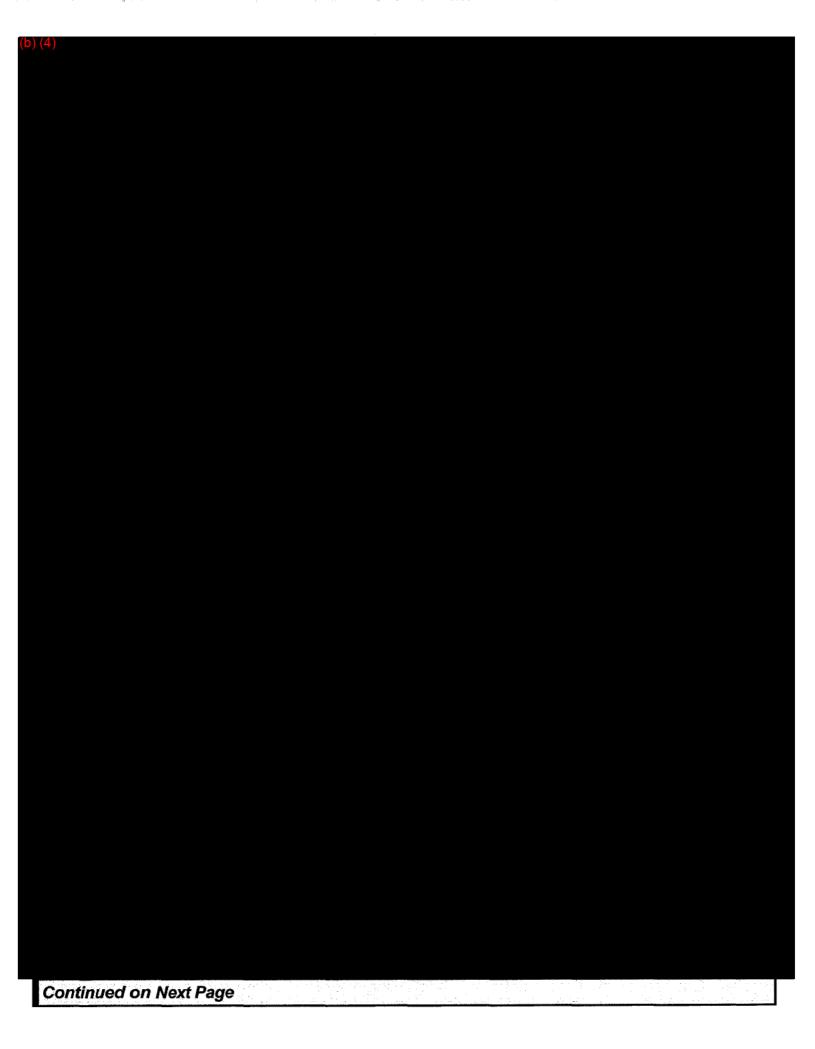
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### Kim Harmon

From:

SRams@aol.com

Sent:

Monday, April 28, 2008 5:55 PM

To: Subject:

Kim Harmon Re: Return Load

Kim:

See below:

### **HRR Fuel Oil Pricing**

Up Dated:

12/5/07

Flash Point:

Min. 135 F

BS&W:

Max. 1%

2% poo deductions

Ash

scount to 3.5% F.O.

0 - 0.3%\$16.00/net bbl \$19.00/net bbl 0.3 - 0.60.6 - 0.90.9 - 1.0

\$21.00/net bbl

BS&W

Additional Discount Neductions

1.1 - 3%

\$4.00/net bbl

3.1 - 6

\$6.00/net bbl

6.1 - 10

\$10.00/net bbl

10.1 - 15

\$12.00/net bbl

Spot loads: Date of delivery

Thanks.

Scott

In a message dated 4/28/2008 5:51:55 P.M. Central Daylight Time, kharmon@cesenvironmental.com writes:

Ok. Can you forward me that Matrix table we discussed earlier?

Thanks,

Kim

atts # b Fuel dil Jex por 1 M43

# 1415 - 90501is

Ash. Coash >15% deduct 15 \$/90/ \$ B5W 15 t/94//cm Trentment id spess Deduct allowed 1% > 300 Non-conforme ( re-eva /vale priery A <1% 1-3% - Neduct 8 \$ / 94/10m >3% - Non-confunday (Pc-evalor (= pricing) IPLAXIS up to 60 /BII

50% cft platt When < 55 psc 48,90% "1 55 = 65 " 46.70% "1 65-70 1239% "1 70-85 423 "1 85-90 41,20

and the state of t

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Baker Highes 10655 1960W

#### Ken Noakes

From:

Gary Brauckman

Sent:

Thursday, August 07, 2008 9:45 AM

To:

Ken Noakes

Subject:

FW: Baker Hughes MSDS

**Attachments:** 

PFR83 - Xylene.pdf; CLO3073.pdf

Please print this out for me! I need the attachments as well as the instructions below.

**Thanks** 

GB

From: Bond, Dee [mailto:Dee.Bond@bakerpetrolite.com]

**Sent:** Thursday, August 07, 2008 9:31 AM

To: Gary Brauckman

Subject: Baker Hughes MSDS

Here are the MSDS for the chemicals that Mike Spratlen called you about this morning. The address is of the site is 18055 1960 West.

<del>- 16055</del> 1960 West.

Take Hwy 290 West to Jones Rd. Turn right on Jones Rd and go to FM1960. Turn right on FM1960 and then turn right. Go to the first road on your right which is Windfern Rd. Turn right onto Windfern and go about one mile and the pipeline station is on your left. Mite spratlen 281-389-6357

Dee W Bond Baker Hughes PMG

Operations Manager 2301 Oil Center Court Houston, TX 77073 Tel 281-230-7108 Mobile 281-382-1420 Fax 281-667-3959

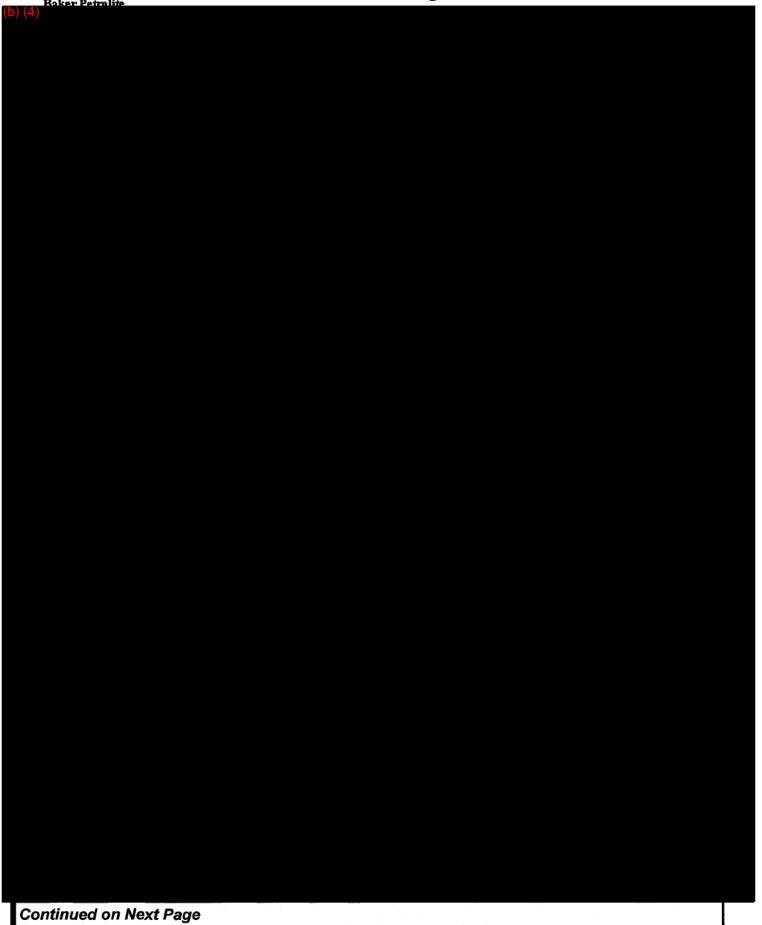
Email <u>dee.bond@bakerhughes.com</u>

www.bakerhughespmg.com

This message is intended exclusively for the individual or entity to which it is addressed. This communication may contain efformation that proprietary, privileged or confidential or otherwise legally exempt from disclosure. If you are not the named addresses, or have ober inadvertendly and erroneously referenced in the address line you are not authorized to read, print, retain, copy or dissed inc. or this message or any part of it. If you have rendired this mossage in error, please notify the sander immediately by e-mail and decide all copies of the messace.

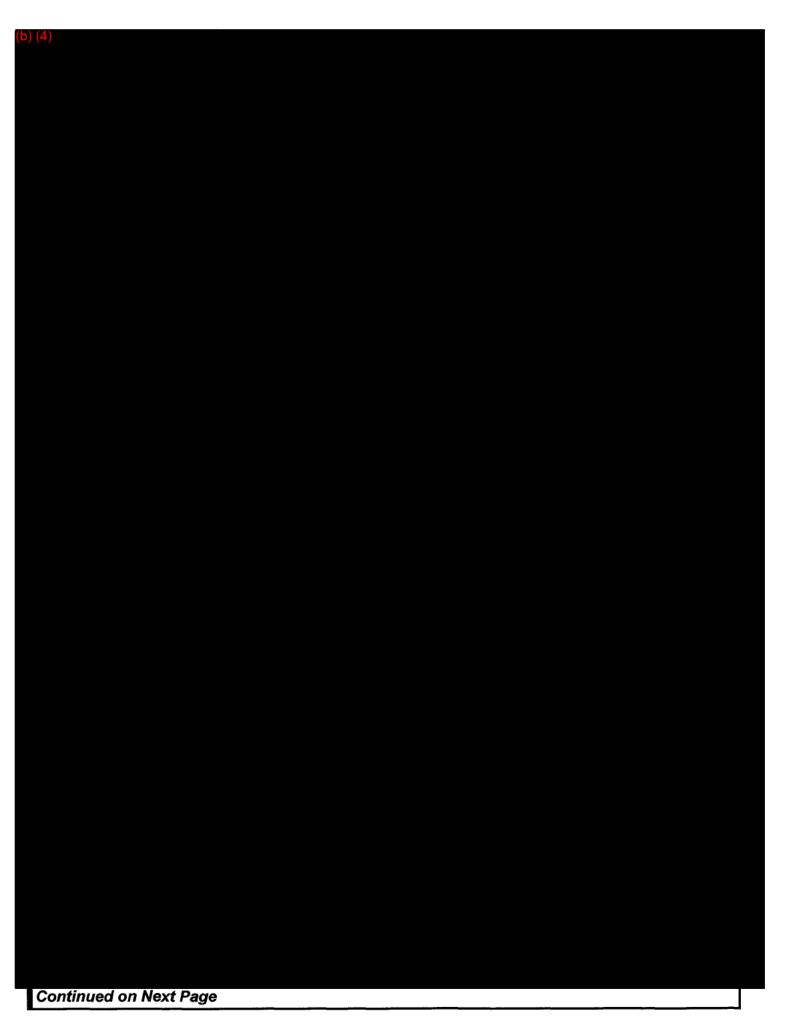


## **Material Safety Data Sheet**



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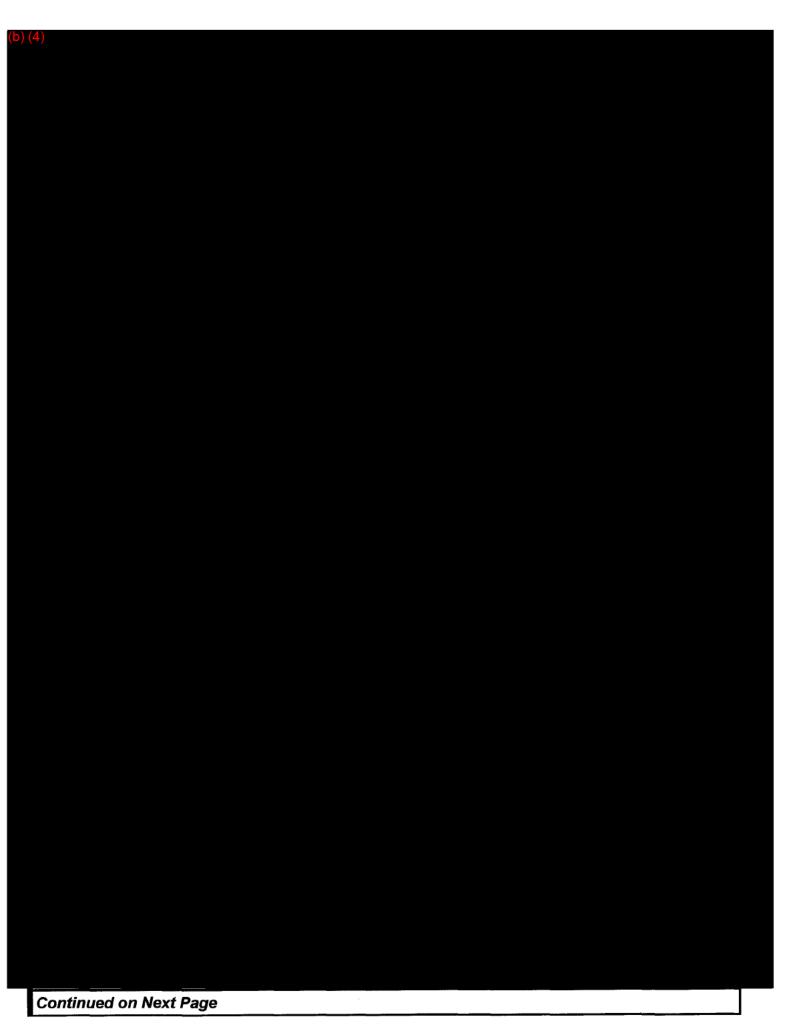
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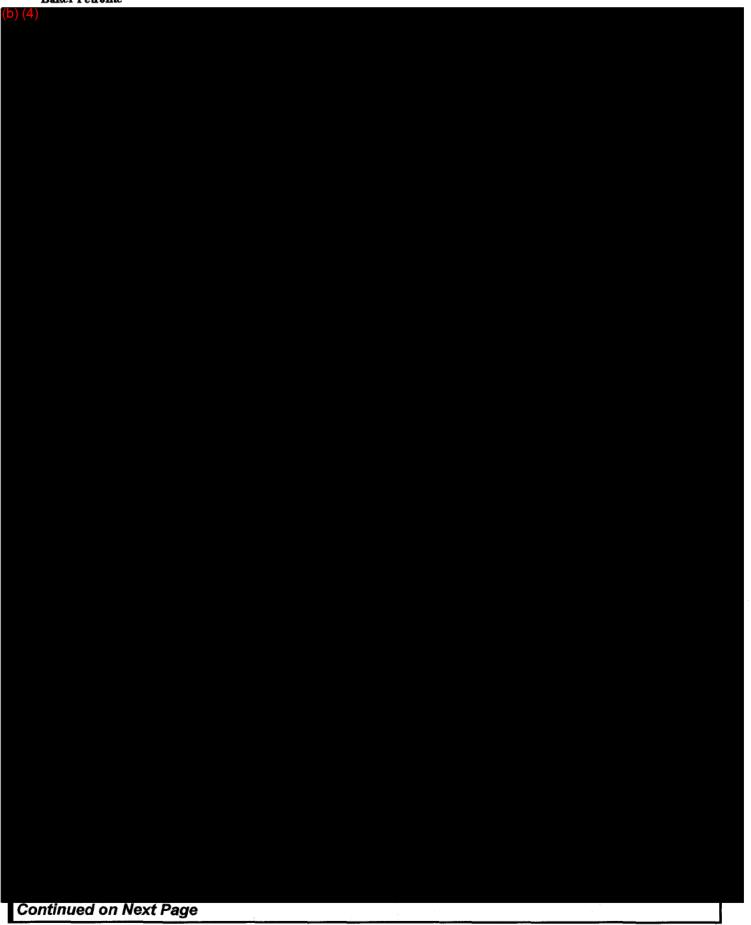
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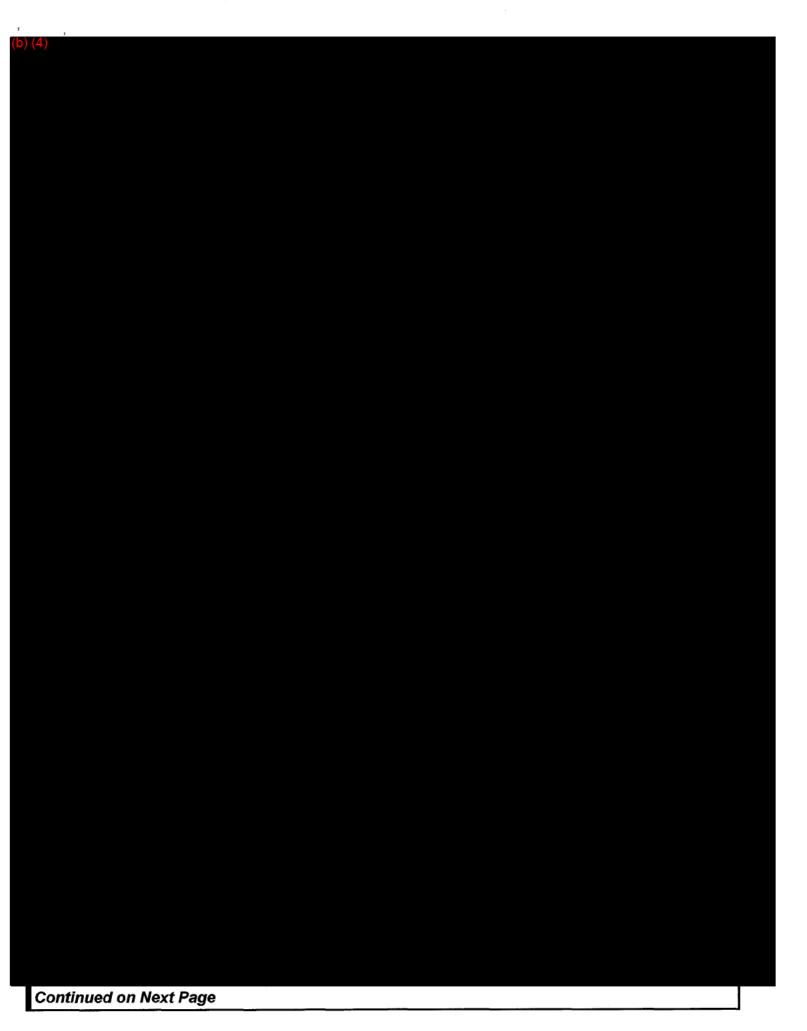
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## **Material Safety Data Sheet**

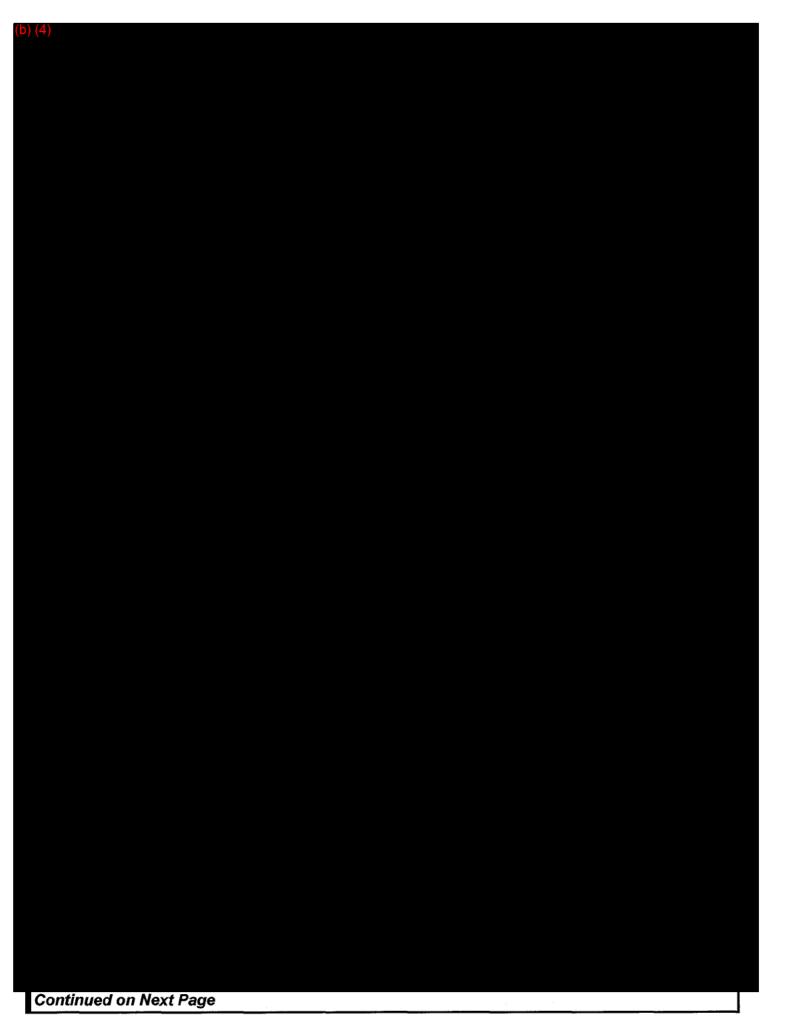




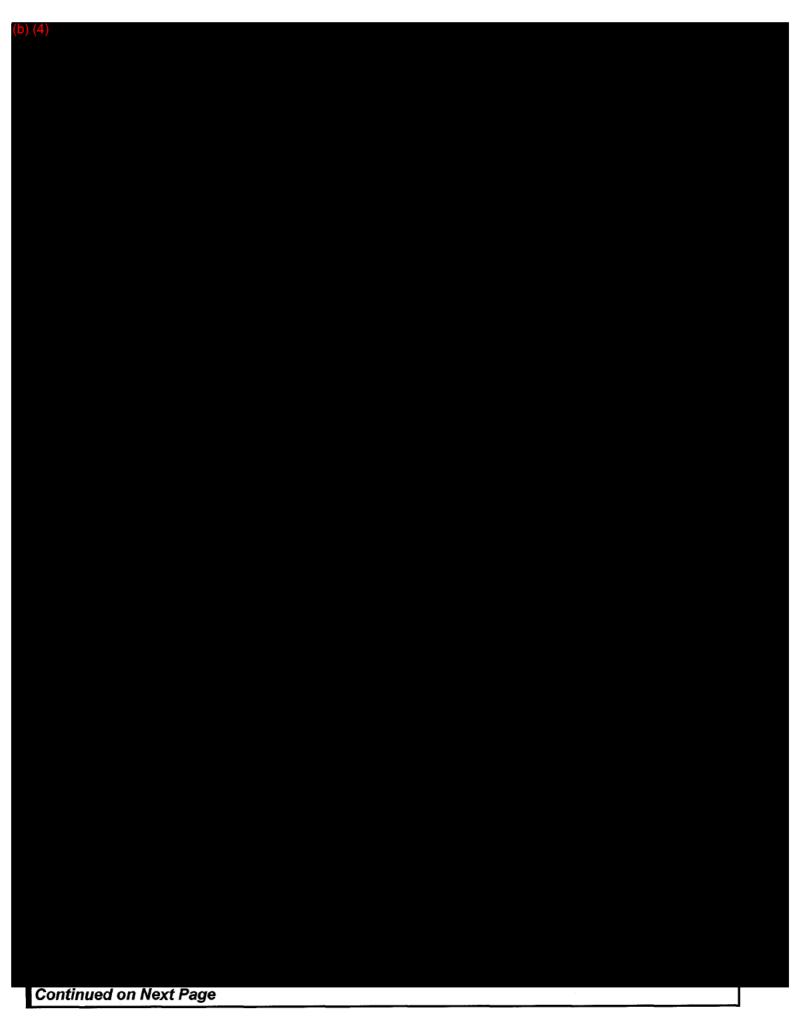


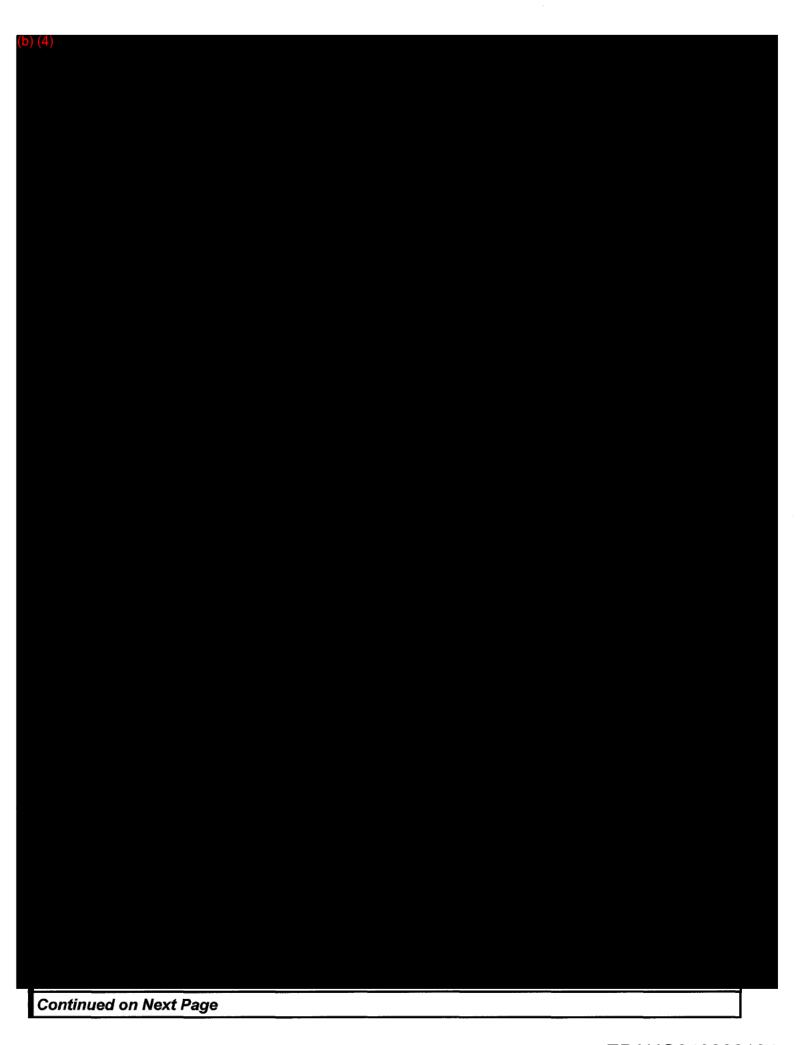
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# Caustic **Material Safety Data Sheet**

**CITGO Petroleum Corporation** P.O. Box 9176

Corpus Christi, TX 78469

MSDS No.

CC-CST

**Revision Date** 

4/24/2007

IMPORTANT: Read this MSDS before handling or disposing of this product and pass this information on to employees, customers and users of this product.

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		· 😈		- ,			

Physical State Liquid.

Color

Not available.

Odor

(Hydrogen sulfide odor).

**DANGER!** 

Corrosive. Causes eye and skin burns.

Causes respiratory irritation and can cause damage to respiratory system.

May be harmful or fatal if swallowed.

If swallowed, seek medical attention immediately.

# **Hazard Rankings**

**HMIS NFPA** 3 0

Reactivity

Health Hazard

Fire Hazard

1

= Chronic Health Hazard

# **Protective Equipment**

Minimum Recommended See Section 8 for Details

Minimum PPE reflects the requirements for this material at this facility unless a task specific hazard assessment is conducted by a qualified safety professional:: CITGO Corpus Christi Manufacturing Complex







# SECTION 1. PRODUCT IDENTIFICATION

**Trade Name** 

Caustic

**Technical Contact** 

(361) 844-5320

**Product Number** 

CC-CST

**Medical Emergency** 

(832) 486-4700 (24 hr.) (361) 844-4645 (M-F)

**CAS Number** 

Mixture.

**CHEMTREC Emergency** (United States Only)

(800) 424-9300

**Product Family** 

Refinery Intermediate Stream

**Synonyms** 

47-v-104 Outlet line to DSO Separator

# SECTION 2. COMPOSITION (TYPICAL)

Component Name(s)	CAS Registry No.	Concentration (%)
Water	7732-18-5	85
Sodium Hydroxide	1310-73-2	12
C6 and heavier hydrocarbons	Mixture	2.7
Alkyl mercaptans	74-93-1	0.2

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Continued on Next Page

Page Number: 1

#### **SECTION 3. HAZARDS IDENTIFICATION**

Also see Emergency Overview and Hazard Ratings on the top of Page 1 of this MSDS.

Major Route(s) of Entry Skin contact. Ingestion.

Signs and Symptoms of Acute Exposure

Inhalation Breathing vapors or aerosols from this material can cause irritation of the throat and lungs

with cough and difficult breathing.

Eye Contact Contact can cause burns and permanent injury to eye tissue. Can cause blindness.

**Skin Contact** Contact can cause skin burns and permanent skin damage.

Ingestion Swallowing this material may be harmful or cause death. Harmful effects include burns and

permanent damage to the digestive tract, including the mouth, throat, stomach and intestines. Symptoms may include severe abdominal pain and vomiting of blood. Blood loss

through damaged tissue can lead to low blood pressure and shock.

**Chronic Health Effects** 

Summary

Prolonged and/or repeated skin contact may produce severe irritation and inflammation.

See Toxicological Information (Section 11)

**Conditions Aggravated** 

by Exposure

Disorders of the following organs or organ systems that may be aggravated by significant

exposure to this material or its components include: Skin, Eyes

Target Organs May cause damage to the following organs: skin, eye, lens or cornea.

Carcinogenic Potential This product is not known to contain any components at concentrations above 0.1% which

are considered carcinogenic by OSHA, IARC or NTP.

	ict doe					jacent to the hazaı Hazard Communio			
OSHA	A Health	Hazard Classification	on		OSH	A Physical Hazard Cla	ssifica	ition	
Irritant Toxic		Sensitizer Highly Toxic		Combustible Flammable		Explosive Oxidizer		Pyrophoric Water-reactive	
Corrosive	X	Carcinogenic		Compressed Gas		Organic Peroxide		Unstable	

#### **SECTION 4. FIRST AID MEASURES**

Take proper precautions to ensure your own health and safety before attempting rescue or providing first aid. For more specific information, refer to Exposure Controls and Personal Protection in Section 8 of this MSDS.

**Inhalation** Immediately move exposed individual to fresh air. Monitor for respiratory distress. If the

individual is not breathing, immediately begin rescue breathing. If breathing is difficult, 100 percent humidified oxygen should be administered by a qualified individual. Seek medical attention immediately. Persons providing mouth-to-mouth rescue breathing may be placing

themselves at risk either from exposure to toxic materials or communicable disease.

Eye Contact Do not attempt to remove contact lenses. Immediately irrigate eyes with copious amounts of

cool, clean, low-pressure water for at least 15 minutes. Hold eyelids apart to ensure complete irrigation of the eye and eyelid tissue. Do not use eye ointment. Seek medical attention

immediately.

MSDS No. CC-CST Revision Date 4/24/2007 Continued on Next Page Page Number: 2

**Skin Contact** Flush thoroughly with cool water under a shower of water for at least 15 minutes while

removing contaminated shoes and clothing. Seek medical attention if tissue appears

damaged or if pain or irritation persists. Thoroughly clean contaminated clothing before reuse.

Discard contaminated leather goods.

Ingestion Do not induce vomiting. If spontaneous vomiting is about to occur, place victim's head below

knees. Do not attempt to neutralize. Have victim rinse mouth with water then drink two to three large glasses of milk or water. Never give anything by mouth to a person who is not fully

conscious. Keep airway clear. Seek medical attention immediately.

INHALATION: Treat as corrosive material. Monitor for pharyngeal and pulmonary edema. **Notes to Physician** 

Onset may be delayed up to 24 hours from exposure. Administer supplemental oxygen with

assisted ventilation, as required.

SKIN: Treat as corrosive material. Wash contaminated skin thoroughly with water or saline.

INGESTION: Due to the potential for esophageal or gastrointestinal tract burns following ingestion, do not induce emesis. Careful gastric lavage may be considered. Immediate dilution with water or milk may be beneficial. Do not treat with sodium bicarbonate or attempt to neutralize as this can cause exothermic gas generation and, in severe cases, cause perforation.

#### SECTION 5. FIRE FIGHTING MEASURES

NFPA Flammability

Classification

Not applicable.

**Flash Point** 

Not applicable.

Lower Flammable Limit Not applicable.

Upper Flammable Limit Not applicable.

A CONTRACTOR OF THE PROPERTY O

Autoignition

**Temperature** 

Not applicable.

Hazardous Combustion Material does not support combustion. No hazardous decomposition products are expected.

**Products Special Properties** 

This material may react with water and acid solutions. This material is not expected to burn

and therefore no special procedures should be necessary.

**Extinguishing Media** 

Not expected to present a fire or explosion hazard. Use foam, waterspray, dry chemical, or carbon dioxide (CO<sub>2</sub>) as extinguishing agents should this material become involved in a fire.

**Protection of Fire** 

**Fighters** 

Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies. Withdraw immediately from the area if there is a rising sound from a venting safety device or discoloration of vessels, tanks, or pipelines.

#### **SECTION 6. ACCIDENTAL RELEASE MEASURES**

Take proper precautions to ensure your own health and safety before attempting spill control or clean-up. For more specific information, refer to the Emergency Overview on Page 1, Exposure Controls and Personal Protection in Section 8 and Disposal Considerations in Section 13 of this MSDS.

> Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. Do not get water inside containers. Minor leaks or spills can be diluted and neutralized with plenty of water. To avoid the evolution of poisonous hydrogen sulfide gas, this acid must not be allowed to contact sulfide wastes (as in sewers). Absorb or cover the neutralized residue with dry earth, sand, or other non-combustible material and transfer to containers. All clean-up materials should be removed for proper treatment or disposal. Contain large spills to maximize product recovery or disposal. Prevent entry into waterways or sewers. In urban area, cleanup spill as soon as possible; in natural environments, cleanup on advice from ecologists to minimize physical habitat damage.

MSDS No.

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**Revision Date** 

4/24/2007

Continued on Next Page

Page Number: 3

Comply with all laws and regulations.

#### SECTION 7. HANDLING AND STORAGE

Handling

Do not breathe vapor or mist. Do not get in eyes, on skin or on clothing. Wash thoroughly after handling.

Storage

Store in glass or other approved containers away from chemicals and combustible materials. Store in a cool, dry, secure and well ventilated area away from sunlight. Keep away from heat, sparks and flame. Keep container tightly closed. Storage area should be equipped with an appropriate chemical resistant floor. Drainage facilities should be constructed for containment of small spills.

#### SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

**Engineering Controls** 

No special ventilation is required under normal conditions of use. Where engineering controls are feasible, use adequate local exhaust ventilation wherever mist, spray, or vapor may be generated. Where carbon dioxide or sulfur dioxide may be generated, special ventilation may be required. Ensure that an emergency eye wash station and safety shower are located near the work-station.

**Personal Protective** Equipment

Personal protective equipment should be selected based upon the conditions under which this material is used. A hazard assessment of the work area for PPE requirements should be conducted by a qualified professional pursuant to OSHA regulations. The following pictograms represent the minimum requirements for personal protective equipment. For certain operations, additional PPE may be required.

Minimum PPE reflects the requirements for this material at this facility unless a task specific hazard assessment is conducted by a qualified safety professional:: CITGO Corpus Christi Manufacturing Complex



**Eye Protection** 

Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. When there is a likelihood of misting, splashing, or spraying, chemical-resistant goggles and full-face shield should be worn. Suitable eye wash water should be readily available.

**Hand Protection** 

Avoid skin contact. Disposable neoprene, rubber, or vinyl gloves are required for use. Wash hands and other exposed skin with mild soap and water before eating, drinking, smoking, or using the toilet facilities.

**Body Protection** 

Avoid all skin contact. If splashing or spraying is expected, chemical-resistant protective clothing should be worn. Protective clothing should include long-sleeves, apron, slicker suit, boots and additional facial protection. Use a full-body corrosives suit whenever appropriate. If general contact occurs, IMMEDIATELY get under an emergency shower and remove contaminated clothing. Then take a thorough shower. Contaminated leather goods should be removed immediately and discarded.

**Respiratory Protection** 

For known vapor concentrations above the occupational exposure guidelines (see below), use a NIOSH-approved acid gas-organic vapor respirator if adequate protection is provided. Protection factors vary depending upon the type of respirator used. Respirators should be used in accordance with OSHA requirements (29 CFR 1910.134).

**General Comments** 

Use good personal hygiene practices. Wash hands and other exposed skin areas with plenty of mild soap and water before eating, drinking, smoking, use of toilet facilities, or leaving work. Do not use gasoline, kerosene, solvents, or harsh abrasive skin cleaners. Use of personal protective equipment and good personal hygiene are essential to controlling exposures to this aqueous solution.

Page Number: 4

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CC-CST

**Revision Date** 

4/24/2007

Continued on Next Page

#### This MSDS was printed on 06/13/2008. It is valid until 08/12/2008. Check the CITCO intranet for the m

#### Caustic

Occupational Exposure Guidelines

Substance

Applicable Workplace Exposure Levels

Sodium Hydroxide

**ACGIH TLV (United States).** 

CEIL: 2 mg/m<sup>3</sup>

OSHA (United States). TWA: 2 mg/m3 8 hour(s).

Methyl mercaptan

**ACGIH TLV (United States).** TWA: 0.5 ppm 8 hour(s). OSHA PEL Z2 (United States).

CEIL: 10 ppm

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES (TYPICAL)

**Physical State** 

Liquid.

Color

Нα

Not available.

Odor

(Hydrogen sulfide odor).

**Specific Gravity** 

1.16 (Water = 1)

> 12.5

Vapor

Density

**Boiling Range** 

100°C (212°F)

(Estimated.)

Melting/Freezing

0°C (32°F)

**Vapor Pressure** 

The highest known value is 2.3 kPa (17.5

**Point** Volatility

Non-volatile.

mm Hg) (at 20°C) (Water).

Solubility in

Water

Easily soluble in cold water.

**Viscosity** (cSt @ 40°C) Not determined.

Flash Point

Not applicable.

Additional

No additional information.

**Properties** 

#### SECTION 10. STABILITY AND REACTIVITY

**Chemical Stability** 

Stable.

Hazardous Polymerization Not expected to occur.

**Conditions to Avoid** 

Keep away from water reactive materials.

**Materials** 

**Products** 

Incompatibility

May react or be incompatible with acids.

Hazardous

Decomposition

This material is expected to be unreactive with most common materials. No hazardous

chemical reaction products are expected.

#### SECTION 11. TOXICOLOGICAL INFORMATION

For other health-related information, refer to the Emergency Overview on Page 1 and the Hazards Identification in Section 3 of this MSDS.

**Toxicity Data** 

Sodium Hydroxide

DERMAL (LD50):

Acute: 1350 mg/kg [Rabbit].

A severe eye, skin and respiratory tract irritant. Corrosive to many organic compounds. If ingested, sodium hydroxide can cause severe pain, bloody diarrhea, cardiovascular collapse and death.

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#### Methyl mercaptan

At concentrations above 50 ppm, methyl and ethyl mercaptans can inhibit respiration. Chronic exposures have been associated with pulmonary edema, hemolytic anemia, methemoglobilemia, kidney and liver damage. Also, these mercaptans can cause eye irritation.

#### **SECTION 12. ECOLOGICAL INFORMATION**

**Ecotoxicity** An environmental fate analysis is not available for this specific product.

**Environmental Fate** This product is miscible in water and is expected to readily disperse in marine environments.

#### SECTION 13. DISPOSAL CONSIDERATIONS

Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly, it is the responsibility of the user to determine the proper storage, transportation, treatment and/or disposal methodologies for spent materials and residues at the time of disposition.

Recovered non-usable material may be regulated by US EPA as a hazardous waste due to its corrosivity (D002). In addition, conditions of use may cause this material to become a hazardous waste, as defined by Federal or State regulations. It is the responsibility of the user to determine if the material is a hazardous waste at the time of disposal. Transportation, treatment, storage, and disposal of waste material must be conducted in accordance with RCRA regulations (see 40 CFR Parts 260 through 271). State and/or local regulations might be even more restrictive. Contact your regional US EPA office for guidance concerning case specific disposal issues.

# **SECTION 14. TRANSPORT INFORMATION**

This material has not been evaluated for proper Department of Transportation shipping name and hazard classification. If shipped in commerce, it may be a DOT Hazardous Material. Contact your transportation specialist or call the technical contact on this MSDS for assistance.

#### SECTION 15. REGULATORY INFORMATION

**TSCA Inventory**This product and/or its components are listed on the Toxic Substances Control Act (TSCA) inventory.

inventory

SARA 302/304 Emergency Planning and Notification The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to Subparts 302 and 304 to submit emergency planning and notification information based on Threshold Planning Quantities (TPQs) and Reportable Quantities (RQs) for "Extremely Hazardous Substances" listed in 40 CFR 302.4 and 40 CFR 355. No components were identified.

SARA 311/312 Hazard Identification

The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to this subpart to submit aggregate information on chemicals by "Hazard Category" as defined in 40 CFR 370.2. This material would be classified under the following hazard categories:

Acute (Immediate) Health Hazard.

SARA 313 Toxic Chemical Notification and Release Reporting

This product contains the following components in concentrations above *de minimis* levels that are listed as toxic chemicals in 40 CFR Part 372 pursuant to the requirements of Section 313 of SARA: No components were identified.

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**CERCLA** 

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center concerning release of quantities of "hazardous substances" equal to or greater than the reportable quantities (RQ's) listed in 40 CFR 302.4. As defined by CERCLA, the term "hazardous substance" does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically designated in 40 CFR 302.4. This product or refinery stream is not known to contain chemical substances subject to this statute. However, it is recommended that you contact state and local authorities to determine if there are any other reporting requirements in the event of a spill.

**Clean Water Act** 

(CWA)

This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.

California
Proposition 65

This product is not known to contain any components for which the State of California has found to cause cancer, birth defects or other reproductive harm.

New Jersey

Right-to-Know Label

For New Jersey R-T-K labeling requirements, refer to components listed in Section 2.

Additional Regulatory

No additional regulatory remarks.

Remarks

# **SECTION 16. OTHER INFORMATION**

Refer to the top of Page 1 for the HMIS and NFPA Hazard Ratings for this product.

#### **REVISION INFORMATION**

**Version Number** 

2.0

**Revision Date** 

4/24/2007

**Print Date** 

Printed on 4/24/2007.

**ABBREVIATIONS** 

AP: Approximately

EQ: Equal >: Greater Than <: Less Than

ACGIH: American Conference of Governmental Industrial Hygienists

AIHA: American Industrial Hygiene Association

IARC: International Agency for Research on Cancer

NTP: National Toxicology Program

NA: Not Applicable

NIOSH: National Institute of Occupational Safety and Health

OSHA: Occupational Safety and Health Administration

ND: No Data

NE: Not Establishe

NPCA: National Paint and Coating Manufacturers Association

HMIS: Hazardous Materials Information System

NFPA: National Fire Protection Association

EPA: US Environmental Protection Agency

#### **DISCLAIMER OF LIABILITY**

THE INFORMATION IN THIS MSDS WAS OBTAINED FROM SOURCES WHICH WE BELIEVE ARE RELIABLE. HOWEVER, THE INFORMATION IS PROVIDED WITHOUT ANY WARRANTY, EXPRESSED OR IMPLIED REGARDING ITS CORRECTNESS. SOME INFORMATION PRESENTED AND CONCLUSIONS DRAWN HEREIN ARE FROM SOURCES OTHER THAN DIRECT TEST DATA ON THE SUBSTANCE ITSELF. THIS MSDS WAS PREPARED AND IS TO BE USED ONLY FOR THIS PRODUCT. IF THE PRODUCT IS USED AS A COMPONENT IN ANOTHER PRODUCT, THIS MSDS INFORMATION MAY NOT BE APPLICABLE. USERS SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION OR PRODUCTS FOR THEIR PARTICULAR PURPOSE.

THE CONDITIONS OR METHODS OF HANDLING, STORAGE, USE, AND DISPOSAL OF THE PRODUCT ARE BEYOND OUR CONTROL AND MAY BE BEYOND OUR KNOWLEDGE. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH HANDLING, STORAGE, USE OR DISPOSAL OF THE PRODUCT.

\*\*\*\* END OF MSDS \*\*\*\*

#### **Gary Brauckman**

From: Alexandra.Taylor@basell.com

Sent: Thursday, January 03, 2008 2:04 PM

To: Gary Brauckman

Cc: Alexandra.Taylor@basell.com

Subject: GP645 Oil (previously Waste Oil) MSDs and information

<<GP645 Oil.pdf>>

Gary, Please find attached an MSDS for the oil(s). The following is a brief description for this material.

Process Oil is generated by the flushing of TEAL scrubbers, blowers and pump seal oils, and the change out of mineral oil in the production of polypropylene. The blowers, compressor drains and pump seals are drained from the process into drums that are pumped into the Process Oil Tank(s). Line flushes of TEAL, donor, catalyst and catalyst mud (catalyst, mineral oil and grease) and the Teal scrubber material are pumped directly to the Process Oil Tank from the process.

Process Oil generally consists of mineral oil (86-100%), Atmer (0.5 -5%), residual solids of aluminum and non-reacted Ziegler Nata catalyst (0-5%), Donor (0-2%) and water (0-2%).

This material was previously classified as a hazardous waste because the presence of light hydrocarbons causes it to exhibit the characteristic of ignitability (D001). It is also possible that the material may exhibit the characteristic of reactivity, because there is the possibility that unreacted TEAL may be present; therefore, Process Oil was characterized conservatively as a reactive waste (D003) also. Prior to shipment off-site for fuel blending, Atmer is added to the Process Oil Tanks (D-885 and TK 8707) to deactivate any potentially unreacted TEAL, and the material was shipped as an ignitable waste ("D001 only").

Because the Process Oil is generated from production processes that <u>have</u> not changed over time, the stream is not subject to variation.

The material is accumulated in two vessels - D885 - 6000 gallons and TK 8707 - 1500 gallons D885 is filled about every 5- 6 weeks, while Tk 8707 is filled about every 10-12 weeks. Both are unloaded using a vacuum truck (not pumped from vessel).

I have also attached some of the analytical data for both vessels.

<<060204 Chempro Process Waste Oilrpt.pdf>> <<chempro 8707 07-671 (2).xls>>

Let me know if you have any further questions.

Alexandra G. Taylor
Basell USA, Inc., Bayport Plant
Environmental/Monomer Engineer
12001 Bay Area Blvd.
Pasadena, Tx 77507
281-604-3422 or Fax 281-604-3542
Pager 713-760-7769

alexandra.taylor@basell.com <mailto:alexandra.taylor@basell.com>
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#### **Gary Brauckman**

**From:** Alexandra.Taylor@lyondellbasell.com

Sent: Wednesday, February 27, 2008 4:48 PM

To: Gary Brauckman

Cc: Alexandra.Taylor@lyondellbaseil.com

Subject: RE: GP645 Oil (previously Waste Oil) MSDs and information

Gary, can you provide a written description of what you propose to do with this oil for me to review with my corporate group?

I am working on getting it ready for the next step and should be calling you once they have reviewed it. Alexandra

From: Taylor Alexandra (Basell)

**Sent:** Thursday, January 03, 2008 14:04 **To:** gbrauckman@cesenvironmental.com

Cc: Taylor Alexandra (Basell)

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10:1703/1

<< File: 060204 Chempro Process Waste Oilrpt.pdf >> << File: chempro 8707 07-671 (2).xls >>

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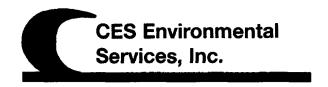
Alexandra G. Taylor Basell USA, Inc., Bayport Plant Environmental/Monomer Engineer 12001 Bay Area Blvd. Pasadena, Tx 77507 281-604-3422 or Fax 281-604-3542

Pager 713-760-7769

alexandra.taylor@basell.com <mailto:alexandra.taylor@basell.com>

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Considered a waste -> Spent By product



4904 Griggs Road Houston, TX 77021 Tel. (713) 676-1460 Fax. (713) 676-1676

To: Gary Brauckman

Cc: Gary Lenertz, Bo Cumberland

Date: 01/03/08

From: Miles Root

Lab Memo: 08-001

Subject: Basell Bayport - Evals #1207-23 & 24- Update Report

This is an update for additional testing done on the two samples from Basell, Bayport. These are two mineral oil samples with minor impurities.

Additional testing was done on an equal volume composite of the two samples. A portion of sample was distilled to 300 deg C with only a single drop of liquid observed to condense into a Dean Stark sidearm trap. A closed cup flash point on the pot sample after the distillation was greater than 140 deg F. An ash run on the same sample was 0.77 wt%.

This completes the known requested testing for these two samples.



4904 Griggs Road Houston, TX 77021 Tel. (713) 676-1460 Fax. (713) 676-1676

To: Gary Brauckman

Cc: Gary Lenertz, Bo Cumberland

Date: 12/26/07

From: Miles Root Lab Memo: 07-021

Subject: Basell Bayport - Evals #1207-23 & 24- Initial Report

Two samples from Basell, Bayport have been evaluated as potential fuel sales. The samples are mineral oil used to strip light organics from teal. Evaluation # 1207-23 is for process 1 and evaluation #1207-24 is for process 2. This report is a summary of what has been to date, as more testing may be required.

Both samples have a cloudy appearance. The process 2 sample has a slight yellow/brown appearance and a few particulates that have settled to the bottom. The process 1 sample looks more like virgin mineral oil. Samples are totally compatible with one another, light ends and black oil. Bo Cumberland has stated that we should go after markets that will use this material neat without processing or blending with our black oil or light ends to obtain the greatest value. Some initial testing has been done on each sample with the understanding that additional testing may be required, as customer needs demand.

The table below summarizes the test results done to date.

Evaluation #	1207-23	1207-24
	Process 1	Process 2
Density	0.848	0.865
Flash Point	125-130F	130-135F
chlor -d-tect		<100 mg/L
Water, vol%	None Detected	

CES Environmental Services Inc. 4904 Griggs Road Houston, TX 77021 Phone: 713-676-1460

Phone:

713-676-1676

November 11, 2008

Baycor International, L.L.C 110 Standifer Street Humble, TX 77338

Attn: Gesner Gonzalez

Re: Management and Clean-up of Non-Haz Product at Gulf Stream Marine

Dear Mr. Gonzalez:

CES Environmental Services, Inc. appreciates the opportunity to present pricing for the management of the above referenced waste stream. Please find below our proposed scope of service and associated pricing:

## **Scope of Service**

- CES will prepare the waste profile document for the materials to be disposed.
- CES will provide for the transportation and loading of the material.
- CES will provide a field crew and equipment to load the broken bags of material and debris into roll-off boxes. CES will also excavate the visually impacted contaminated soil and debris.
- CES will transport the material to a permitted non-hazardous facility either to Waste Management, Allied Waste or Republic waste.
- CES will provide the appropriate shipping documents for material managed.

Baycor International, L.L.C. November 11, 2008 Page 2 of 3

#### **Pricing** (Time and Materials)

Description	Estimated Qty.	Price	Total
Back Hoe Pickup and delivery	1 each	\$ 250.00	\$ 250.00
Back Hoe Rental	3 days	\$ 275.00	\$ 825.00
Operator with Utility Truck	30 hours	\$ 65.00	\$1,950.00
(Includes FSC)		_	
Technicians (2)	60 hours	\$ 28.00	\$1,680.00
Project Manager	2 hours	\$ 75.00	\$ 150.00
PPE (Per Man/day)	9 sets	\$ 25.00	\$ 225.00
Roll-off box delivery	4 each	\$ 250.00	\$1,000.00
Fuel Surcharge	1 each	33%	\$ 330.00
Box Rental	12 days	\$ 15.00	\$ 180.00
Roll-off Truck (8 boxes)	32 hours	\$ 70.00	\$2,240.00
Fuel Surcharge	1 each	33%	\$ 739.20
Box liners	8 each	\$ 35.00	\$ 280.00
Disposal Class II non-haz	120 yards	\$ 20.00	\$2,400.00
State Waste Fee Class II	120 tons	\$ 1.25	\$ 150.00
Disposal Class I non-haz	120 tons	\$ 50.00	
State Waste Fee Class I	120 tons	\$ 6.00	
	Estimated	Total	\$12,399.20

#### **Conditions/Assumptions**

- The above pricing is based on information gathered from the generator through MSD sheets. Additional testing may be required depending on the requirements of the receiving facility.
- Pricing for non-conforming waste will be determined upon review.
- Fuel surcharge subject to change based on the current market value for motor fuels.
- Services to be performed on a time and materials basis, the customer's invoice will be based on the actual quantities utilized.
- The above pricing does not include applicable sales tax.
- Testing maybe required from the receiving facility in addition to the MSDS for classification purposes. If such testing is required, CES will collect the sample and submit the sample to a third party laboratory for analysis. The cost for this service will be cost plus 20% plus \$75.00 for handling.
- Material that is non-hazardous but does not meet the criteria for Class II non-hazardous waste will be managed as a Class I non-hazardous waste at the Class I non-hazardous price.

CES Environmental Services, Inc.

4904 Griggs Road

Houston, TX 77021

Baycor International, L.L.C. November 11, 2008 Page 3 of 3

It is our sincere hope that you find our proposed scope of service and associated pricing appealing and will consider utilizing the services offered by CES Environmental Service, Inc. If you have any questions or comments or would like to begin service, please feel free to contact me at 713-417-5737.

Sincerely,

Gary Brauckman Account Manager



MSDS NO.

12412

Trade Name: M-I GEL\*

Revision Date: 12/28/2007

## CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Trade Name:** 

M-I GEL\*

**Chemical Family:** 

Mixture

**Product Use:** 

Oil well drilling fluid additive.

**Emergency Telephone (24 hr.):** 

281-561-1600

Supplied by:

M-I L.L.C.

P.O. Box 42842 Houston, TX 77242 www.miswaco.com

**Telephone Number:** 

281-561-1512

Prepared by:

**Product Safety Group** 

**Revision Number:** 

**HMIS Rating** 

Health: 1\*

Flammability: 0

Physical Hazard: 0

PPE: E

HMIS Key: 4=Severe, 3=Serious, 2=Moderate, 1=Slight, 0=Minimal Hazard. \*Chronic effects - See Section 11. See Section 8 for Personal Protective Equipment recommendations.

#### HAZARDS IDENTIFICATION

**Emergency Overview:** 

Caution! May cause eye, skin, and respiratory tract irritation. Long term inhalation of particulates may cause lung damage. Cancer hazard. Contains crystalline silica which may cause cancer.

**Canadian Classification:** 

UN PIN No:

Not regulated.

WHMIS Class: D2A

Physical State:

Powder.

Odor

Odorless

Color:

Tan to grey

**Potential Health Effects:** 

**Acute Effects** 

**Eye Contact:** 

May cause mechanical irritation

**Skin Contact:** 

May cause mechanical irritation. Long term contact can cause skin dryness.

Inhalation:

May cause mechanical irritation.

Ingestion:

May cause gastric distress, nausea and vomiting if ingested.

Carcinogenicity & Chronic

Effects:

See Section 11 - Toxicological Information.

**Routes of Exposure:** 

Eyes. Dermal (skin) contact. Inhalation.

Target Organs/Medical **Conditions Aggravated by** 

Overexposure:

Eyes. Skin. Respiratory System.

Trade Name: M-I GEL\*

**MSDS NO. 12412** 

**Revision Date: 12/28/2007** 

# **3. COMPOSITION/INFORMATION ON INGREDIENTS**

Ingredient	CAS No.	Wt. %	Comments:
Bentonite	1302-78-9	80 - 95	No comments.
Silica, crystalline, quartz	14808-60-7	2 - 15	No comments.
Gypsum (Calcium sulfate) (CAS 7778-18-9 also applies.)	13397-24-5	0 - 1	No comments.
Silica, crystalline, Tridymite	15468-32-3	0 - 1	No comments.

A FIRST AIDMEASURES

Promptly wash eyes with lots of water while lifting eye lids. Continue to rinse for at **Eye Contact:** 

least 15 minutes. Get medical attention if any discomfort continues.

Wash skin thoroughly with soap and water. Remove contaminated clothing and **Skin Contact:** 

launder before reuse. Get medical attention if any discomfort continues.

Inhalation: Move person to fresh air. If not breathing, give artificial respiration. If breathing is

difficult, give oxygen. Get medical attention.

Ingestion: Dilute with 2 - 3 glasses of water or milk, if conscious. Never give anything by mouth

to an unconscious person. If signs of irritation or toxicity occur seek medical

attention.

**General notes:** Persons seeking medical attention should carry a copy of this MSDS with them.

# 5: FIRE FIGHTING MEASURES

#### Flammable Properties

Flash Point: F (C): NA Flammable Limits in Air - Lower (%): NA

Flammable Limits in Air - Upper (%): NA Autoignition Temperature: F (C): NA

Flammability Class:

NA

Other Flammable Properties:

ND

Extinguishing Media:

This material is not combustible. Use extinguishing media appropriate for

surrounding fire.

#### **Protection Of Fire-Fighters:**

Special Fire-Fighting Procedures: Do not enter fire area without proper personal protective equipment, including NIOSH/MSHA approved self-contained breathing apparatus. Evacuate area and fight fire from a safe distance. Water spray may be used to keep fire-exposed containers cool. Keep water run off out of sewers and waterways.

Hazardous Combustion Products: Not determined.

#### 6 ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** 

Use personal protective equipment identified in Section 8.

**Spill Procedures:** 

Evacuate surrounding area, if necessary. Wet product may create a slipping hazard. Contain spilled material. Avoid the generation of dust. Sweep, vacuum, or shovel

and place into closable container for disposal.

**Environmental Precautions:** 

Waste must be disposed of in accordance with federal, state and local laws. Do not

allow to enter sewer or surface and subsurface waters.

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Trade Name: M-I GEL\*
MSDS NO. 12412 Revision Date: 12/28/2007

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#### 7. HANDLING AND STORAGE

Handling:

Put on appropriate personal protective equipment. Avoid contact with skin and eyes. Avoid generating or breathing dust. Product is slippery if wet. Use only in a well

ventilated area. Wash thoroughly after handling.

Storage:

Store in dry, well-ventilated area. Keep container closed. Store away from incompatibles. Follow safe warehousing practices regarding palletizing, banding, shrink-wrapping and/or stacking.

#### 3. EXPOSURE CONTROES/PERSONAL PROTECTION

#### Exposure Limits (TLV & PEL - 8H TWA):

Ingredient	CAS No.	Wt. %	<b>ACGIH TLV</b>	OSHA PEL	Other	Notes
Bentonite	1302-78-9	80 - 95	NA NA	NA	NA	(1)
Silica, crystalline, quartz	14808-60-7	2 - 15	0.025 mg/m <sup>3</sup>	see Table Z-3	NIOSH: 0.05 mg/m³ TWA (10H day/40H wk)	(R)
Gypsum (Calcium sulfate) (CAS 7778-18-9 also applies.)	13397-24-5	0 - 1	10 mg/m <sup>3</sup>	15 mg/m³ (total); 5 mg/m³ (respirable)	NÁ	None
Silica, crystalline, Tridymite	15468-32-3	0 - 1	0.05 mg/m <sup>3</sup>	see Table Z-3	NA	(R)

#### **Notes**

(1) Control as an ACGIH particulate not otherwise specified (PNOS): 10 mg/m³ (Inhalable); 3 mg/m³ (Respirable) and an OSHA particulate not otherwise regulated (PNOR): 15 mg/m³ (Total); 5 mg/m³ (Respirable). (R) Respirable fraction (ACGIH);

Table Z-3: PEL for Mineral Dusts containing crystalline silica are 10 mg/m³ / (%SiO2+2) for quartz and 1/2 the calculated quartz value for cristobalite and tridymite.

**Engineering Controls:** Use appropriate engineering controls such as, exhaust ventilation and process enclosure, to ensure air contamination and keep workers exposure below the applicable limits.

#### **Personal Protection Equipment**

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazards present and the risk of exposure to those hazards. The PPE recommendations below are based on our assessment of the chemical hazards associated with this product. The risk of exposure and need for respiratory protection will vary from workplace to workplace and should be assessed by the user.

**Eye/Face Protection:** 

Dust resistant safety goggles.

**Skin Protection:** 

Wear appropriate clothing to prevent repeated or prolonged skin contact. Chemical resistant gloves recommended for prolonged or repeated contact. Use protective gloves made of: Nitrile. Neoprene.

**Respiratory Protection:** 

All respiratory protection equipment should be used within a comprehensive respiratory protection program that meets the requirements of 29 CFR 1910.134 (U.S. OSHA Respiratory Protection Standard) or local equivalent.

If exposed to airborne particles of this product use at least a NIOSH-approved N95 half-mask disposable or re-useable particulate respirator. In work environments containing oil mist/aerosol use at least a NIOSH-approved P95 half-mask disposable or re-useable particulate respirator.

Trade Name: M-I GEL\*

MSDS NO. 12412

Revision Date: 12/28/2007

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General Hygiene Considerations: Work clothes should be washed separately at the end of each work day. Disposable

clothing should be discarded, if contaminated with product.

# 9: PHYSICALIAND CHEMICAL PROPERTIES

Color: Odor Tan to grey Odorless

Physical State:

Powder.

pH:

ND

Specific Gravity (H2O = 1): Solubility (Water): 2.3 - 2.6 Insoluble

Melting/Freezing Point: Boiling Point:

ND

Vapor Pressure:

ND NA

Vapor Density (Air=1): Evaporation Rate:

NA NA ND

## TO STABILITY AND REACTIVITY

Chemical Stability:

Odor Threshold(s):

Stable

**Conditions to Avoid:** 

Keep away from heat, sparks and flame.

Materials to Avoid:

ND.

**Hazardous Decomposition** 

For thermal decomposition products, see Section 5.

**Products:** 

**Hazardous Polymerization:** 

Will not occur

# AL RETOXICOLOGICALINGORMATION

Component Toxicological Data: Any adverse component toxicological effects are listed below. If no effects are listed, no such data were found.

Ingredient	Component Toxicological Summary
Silica, crystalline, quartz	Crystalline silica is the most widely occurring of all minerals. The most common form of silica is sand. The International Agency for Research on Cancer (IARC) has designated crystalline silica in the form of quartz or cristobalite a Group 1 (carcinogenic to humans). This designation was based on an increased risk of lung cancer among crystalline silica exposed workers. IARC did note that carcinogenicity of crystalline silica in humans was not detected in all industrial circumstances studied. Further, carcinogenicity of crystalline silica may be dependent on inherent characteristics of the crystalline silica or external factors affecting its biological activity or distribution of polymorphs. (IARC Vol. 68, 1997, p. 41).  The National Toxicology Program (NTP) classifies crystalline silica as "reasonably anticipated to cause cancer in humans" (6th Annual Report on Carcinogens, 1991). Long term inhalation of crystalline silica can also result in the lung disease, silicosis. Symptoms of this disease include coughing and shortness of breath. (NJ HSFS, January 1996)

#### **Product Toxicological Information:**

Long term inhalation of particulate can cause irritation, inflammation and/or permanent injury to the lungs. Illnesses such as pneumoconiosis ("dusty lung"), pulmonary fibrosis, chronic bronchitis, emphysema and bronchial asthma may develop.

#### 12 EGOLOGICAL NEORNATION

**Product Ecotoxicity Data:** 

Contact M-I Environmental Affairs Department for available product ecotoxicity data.

Trade Name: M-I GEL\*

**MSDS NO. 12412** 

**Revision Date: 12/28/2007** 

**Biodegration:** 

ND

Bioaccumulation: Octanol/Water Partition ND ND

Coefficient:

13. DISPOSALECONSIDERATIONS

Waste Classification:

ND

**Waste Management:** 

Under U.S. Environmental Protection Agency (EPA) Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user to determine at the time of disposal, whether the product meets RCRA criteria for the hazardous waste. This is because product uses, transformations, mixtures, processes, etc., may render the resulting materials hazardous. Empty containers retain residues. All labeled precautions must be observed.

**Disposal Method:** 

Recover and reclaim or recycle, if practical. Should this product become a waste, dispose of in a permitted industrial landfill. Ensure that the containers are empty by the RCRA criteria prior to disposal in a permitted industrial landfill.

44 A TRANSPORTINEORWATION

U.S. DOT Shipping Description:

Not regulated for transportation by DOT, TDG, IMDG,

ICAO/IATA.

**Canada TDG Shipping Description:** 

**UN PIN No:** 

Not regulated. Not regulated.

**IMDG Shipping Description:** 

Not regulated.

**ICAO/IATA Shipping Description:** 

Not regulated.

#### 15 RECULATORY NEORMATION

U.S. Federal and State Regulations

SARA 311/312 Hazard Catagories: Delayed (chronic) health hazard.

California Proposition 65:

SARA 302/304, 313; CERCLA RQ, Note: If no components are listed below, this product is not subject to the referenced SARA and CERCLA regulations and is not known to contain a Proposition 65 listed chemical at a level that is expected to pose a significant risk under anticipated use

conditions.

Ingredient	SARA 302	<b>SARA 313</b>	CERCLA	CA 65	CA 65	CA 65	CA 65
	/ TPQs		RQ	Cancer	Dev. Tox.	Repro. F	Repro. M
Silica, crystalline, quartz				Х			
Silica, crystalline, Tridymite				X			

**International Chemical Inventories** 

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Trade Name: M-I GEL\*
Revision Date: 12/28/2007

**MSDS NO. 12412** 

Australia AICS - Components are listed or exempt from listing. Canada DSL - Components are listed or exempt from listing. China Inventory - Components are listed or exempt from listing.

European Union EINECS/ELINCS - Components are listed or exempt from listing.

Japan METI ENCS - Components are listed or exempt from listing. Korea TCCL ECL - Components are listed or exempt from listing. Philippine PICCS - Components are listed or exempt from listing. U.S. TSCA - Components are listed or exempt from listing.

U.S. TSCA - No components are subject to TSCA 12(b) export notification requirements.

#### **Canadian Classification:**

Controlled Products Regulations Statement: This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

WHMIS Class:

D<sub>2</sub>A

# 16. OTHER INFORMATION

The following sections have been revised: 1, 8, 16

NA - Not Applicable, ND - Not Determined.

\*A mark of M-I L.L.C.

#### Disclaimer:

MSDS furnished independent of product sale. While every effort has been made to accurately describe this product, some of the data are obtained from sources beyond our direct supervision. We can not make any assertions as to its reliability or completeness; therefore, user may rely on it only at user's risk. We have made no effort to censor or conceal deleterious aspects of this product. Since we cannot anticipate or control the conditions under which this information and product may be used, we make no guartantee that the precautions we have suggested will be adequate for all individuals and/or situations. It is the obligation of each user of this product to comply with the requirements of all applicable laws regarding use and disposal of this product. Additional information will be furnished upon request to assist the user; however, no warranty, either expressed or implied, nor liability of any nature with respect to this product or to the data herein is made or incurred hereunder.

Page 6/6

Andre Richard > 505a Officil 3-279-2359 Baycon

#### **Gary Brauckman**

From:

Gesner Gonzalez [ggonzalez@baycorinternational.com]

Sent:

Monday, November 10, 2008 4:18 PM

To:

Gary Brauckman

Subject:

Fw: MSDS Borresol FE-P70 MSDS

Attachments:

Borresol FE-P70 Powder.PDF; PDS Borresol FE-P70.pdf

Gesner Gonzalez, Traffic Manager.

Baycor International, LLC

Ph +1-281-784-1245

(web) Baycorinternational.com

Fax +1-281-784-1257

cfernandez@baycorinternational.com

110 Standifer Street

baycorcustomerservice@hotmail.com

Humble, Texas 77338

#### \*\*\*\*CONFIDENTIALITY NOTICE\*\*\*\*

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---- Original Message -----

From: King, Sandy To: Gesner Gonzalez

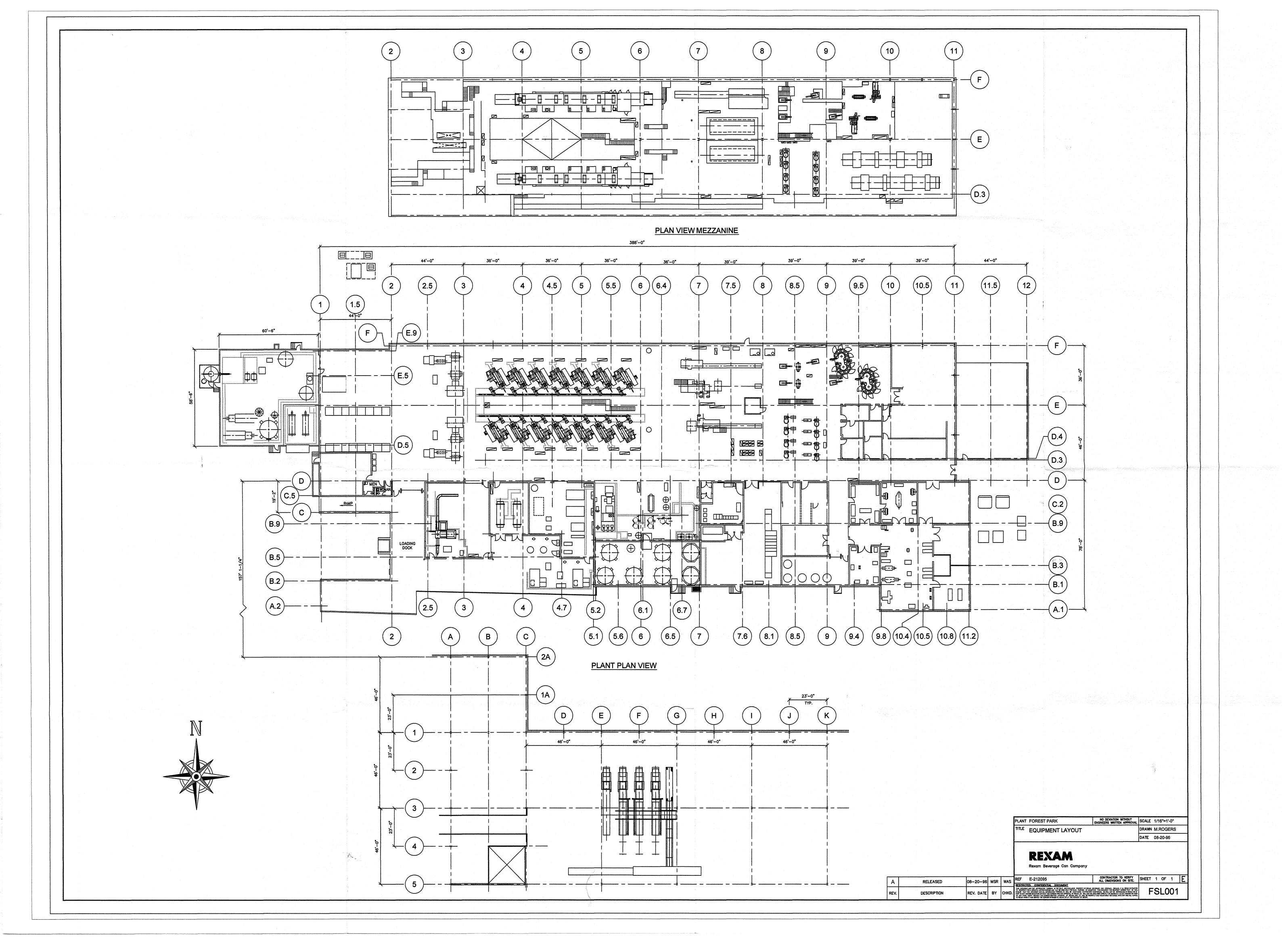
Sent: Monday, November 10, 2008 10:56 AM Subject: MSDS Borresol FE-P70 MSDS

Here is the MSDS for the Borresol per your request.

Thanks.

Sandy King Federal Wholesale 800-231-3565

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CES Environmental Services, Inc.

4904 Griggs Rd. Houston, TX 77021

Phone: (713) 676-1460 Fax: (713) 676-1676

# Quotation

December 2, 2008

**Envision Environmental** 

Attn: Jim Gonsewski/ Mark Roman

Phone: 609-208-1885 Fax: 609-208-1889

# **Description of Work to be Performed:**

A. Start-up Costs-Materials/Purchases/Preparations

Estimate for materials, labor, equipment, transportation and disposal/recycle for the removal of wastes and recyclables at the Rexam Beverage Can Company.

# **Mobilization/Demobilization**

- -1<sup>st</sup>initial trip includes some initial equipment purchases (Hoses, Etc.)
- -All Mobilization/Demobilization charges include transit/per diems to and from our Houston location to Atlanta Rexam site, and return from the Atlanta to Houston with base equipment and manpower listed below
- -All trips from Houston will include costs associated with travel to the site based on delays beyond the control of CES up to and including acts of God.
- -Non-work days on site can include Saturdays and Sundays if requested. Non-work after 2 consecutive days off beyond CES's control may be negotiated if necessary between CES and Envision at agreed upon rates based on request.

A.	Initial Travel and associated costs to Atlanta	\$ 7,000.00
A.	Travel Back and associated costs to Houston	\$ 7,000.00
<u>A.</u>	1st Initial Trip- Start up Costs, Mobilize, Demobilize-Subtotal	\$31,600.00
B.	Additional trips from Houston-Mobilize	\$ 7,000.00
В.	Additional trips from Houston-Demobilize	\$ 7,000.00
B.	Additional Trips- Mobilize/Demobilization/Per Diem-Subtotal	\$14,000.00

#### C. Non-work day rates

-Sat/ Sunday, or just Sun (or up to 2 days/week-for per diems)	<u>\$150/man</u>
-Other non-working day due to delays beyond CES's Control	<u>Negotiable</u>

# **Estimated Daily Charges for Base Labor and Equipment:**

- -Labor for the base estimate includes a crew of 5 consisting of 1-project supervisor/operator, 4 field service technicians/operators, associated per diem, and standard/confined space PPE/safety equipment for a maximum of 11 hours/day. A larger crew can be requested for additional rates at the customer's request. No overtime rates will be charged Mon-Sat for up to 11 hours/day.
- -Equipment included in this base daily estimate includes the following: 1 air machine (100 foot flex hose free), 1 field service truck and trailer, 18 wheel box truck and trailer,

\$17,600.00

2-diaphragm pumps, 2-heated pressure washers, 2-standard pressure washers, all hose for diaphragm pumps/pressure washers, fuel and fuel surcharges.

-Assumes work week with not less than 40 hrs/wk and not to exceed 66 hours/wk unless approved by both CES and the customer.

Breakdown Subtotal Below (Estimated up to 11 hours per work day)	Breakdown-Subtotal Below	(Estimated up to 11	hours per work day)
--	--------------------------	---------------------	---------------------

Air Machine w/Operator-Includes Fuel Surcharges (1)	\$1,750/day
Box Van w/Haz Mat Driver-Doubles also as helper-Includes FSC (1)	\$ 925/day
FS Truck & Trailer-Includes FSC	\$ 250/day
Field Service Driver/Operator/Tech (1)	\$ 330/day
Field Service Technicians (2)	\$ 330/man/day
Large-5000 PSI Heated Pressure Washer-Diesel Operated w/fuel (2)	\$ 250/unit/day
Gas Operated Pressure Washers-2500 PSI w/fuel (2)	\$ 75/unit/day
PPE @ \$30/day/man	\$150/day/crew
Diaphragm Pumps-2 inch air operated (2)	\$75/unit/day

# Estimated Daily Rate for Items Listed Above (CES Workers)

\$6,040.00/day

#### **Materials Costs for Items**

- -Price only includes those items used. Box Van will be full of supplies, but may not have unlimited supplies.
- -Materials used over those brought to site, items not listed, or unexpected materials, will be at a rate of cost plus 20%. Receipts will be included as part of back-up information for materials that fall under this category.

Reconditioned Open Top Drums (55 gal-Steel)	\$35/dm
Reconditioned Poly Open Top Drums (55 Gallon)	\$55/dm
Reconditioned Poly Totes (250 gallon)	\$95/tote
Flex Hose (Over 100 foot/day)	\$1.25/foot
Clay Absorbents	\$12/bag
Pad Absorbent	\$60/bag (100)
Other Misc. Items Purchased by CES	_ , ,
-Includes pipe fittings, plastic, etc. as need arises	Cost + 20%

#### Rentals/Disposal/Recycling/Transportation and Associated Costs

-It is logical that all costs for disposal/recycling activities, equipment rental, transportation, and costs associated with these line items may fluctuate over the life of the project.

-CES agrees to used vendors approved by client.

Rentals/Disposal/Recycling/Transportation and Associated Costs Cost + 20%

#### **Subcontracted Work**

-Any work performed by pre-approved subcontractors will be pre-approved by the client.

Any Approved subcontracted work

Cost + 20%

<sup>\*</sup>These are work day rates only. Non-work day rates are listed above.

<sup>\*</sup>These rates do not include travel days listed in mobilization/demobilization rates.

<sup>\*</sup>Partial work days may be negotiated at an agreed upon rate.

<sup>\*</sup>Any subcontracted work preapproved by customer for services not listed will be At cost + 20% if hired by CES and approved by customer.

# **Terms and Conditions**

- \*\*CES will work around on-site production equipment and make efforts to protect Rexam equipment yet does not assume any liability for damage to equipment from cleaning site. CES requested that the equipment be removed, but decided that it was not practical to do so.
- \*\*CES expects to be able to work in a safe environment to OSHA standards. Any work requested that cannot be performed under OSHA standards will be refused and will be made aware in advance for this type of activity (If Necessary).
- \*\*If work terminates for good reason, CES client agrees to pay all outstanding invoices.
- \*\*Payment terms are net 30 days, unless negotiated prior to beginning of the project.
  \*\*\*Thank you for your interest in CES Environmental Services, Inc.

Acceptance Signature_	 	 	
Date			

# TIME AND MATERIAL RATES January 2007

(Confidential. For use by Environmental Products & Services of Vermont, Inc. employees and approved customers only.

Any other use must be approved by the Legal Department.)

(Complete Price List includes an index and 17 pages)

LABOR PRICE / UNIT

All Environmental Products & Services of Vermont, Inc. personnel have received special 40-hour health and safety training and annual refresher courses as required by OSHA to work with hazardous waste.

Asbestos Field Technician	47.00 / hour
Asbestos Supervisor	56.00 / hour
CAD Operator / Draftsperson	56.00 / hour
Driller	61.00 / hour
Driller Assistant	50.00 / hour
Emergency Response Manager	84.00 / hour
Environmental Coordinator	
Environmental Sampling Technician	56.00 / hour
Equipment Operator	
Field Technician	
Foreman	56.00 / hour
Geologist / Engineer / Environmental Scientist	73.00 / hour
Geoscience Technician	
Health & Safety Coordinator	67.00 / hour
Health & Safety Trainer	139.00 / hour
Incident Commander	
Industrial Hygiene Technician	67.00 / hour
Industrial Hygienist / Chemist	84.00 / hour
Instrument Repair Technician	61.00 / hour
Mechanic / Pipe Fitter / Plumber / Electrician / Welder	56.00 / hour
Operations Supervisor	
Principal	
Professional Engineer / Certified Industrial Hygienist / Certified Safety Profession	al. 106.00 / hour
Project Geologist / Engineer / Environmental Scientist	
Project Manager	
Remediation Systems Technician	50.00 / hour
Senior Geologist / Engineer / Environmental Scientist	106.00 / hour
Senior Project Manager	100.00 / hour
Senior Remediation Systems Technician	61.00 / hour
Spill Coordinator (Off-Site)	84.00 / hour
Surveyor	
Surveyor Assistant	50.00 / hour
Tank Tester	61.00 / hour
Tank Tester Assistant	
Word Processor / PC Operator	39.00 / hour

Time and Material rates are subject to change without notice.

#### TRUCKS / TRANSPORT / STORAGE VEHICLES

**PRICE / UNIT** 

Mobilization/demobilization will be charged in addition to rental.

Vacuum Trucks are outfitted with 100' of hose. See the Pumps, Compressors, Generators, and Hoses Section for additional hose charges.

Fordiff (0.000 lb.) (turnopositation order) *	070.00 / -1-:#
Forklift (2,000 lb.) (transportation extra) *	278.00 / SNIπ
Frac Tank (22,000 gal) *	
Trailer, Box TransportTrailer, Mobile Decontamination (one-week minimum) **  Trailer, Mobile Decontamination **	107.00 / Snift
Trailer, Mobile Decontamination (one-week minimum)	1,334.00 / week
(four-shower unit, hook-up charges extra)	3,007.007 [HOHIII
Trailer, Office (four-week minimum)	278 00 / week
Trailer, Spill Response	
Trailer, Storage Tanker *	39.00 / hour
Trailer, Storage Tanker *	
Trailer, Storage Box *	
Trailer, Transport (6,000 gal) (tractor is extra)	
Trailer, Transport (6,000 gal) (tractor is extra)	
Vacuum Truck, Industrial (3,500 gal) <sup>H</sup>	
Vacuum Truck, Stainless Steel (3,500 gal) <sup>H</sup>	
Vacuum Truck, Low Profile (1000 gal) H	
Vacuum Truck, Industrial Wet/Dry (3,500 gal) <sup>H</sup>	
Vacuum Truck, Stainless Steel Wet/Dry (3,500 gal) <sup>H</sup>	
Vacuum Truck, Bag House Dry (17 cubic yards) <sup>H</sup>	
Vacuum Trailer, Industrial (5,500 gal) (tractor is extra) <sup>H</sup>	
Vacuum Trailer, Stainless Steel (5,500 gal) (tractor is extra) H	
Vacuum Truck Cleaning (light oil and water) <sup>H</sup>	
(heavy oil and disposal is extra)	100.00 / 111111111111111
Vacuum Trailer Cleaning (light oil and water) H	223 00 / minimum
(heavy oil and disposal is extra)	220.007 [[[[[[[[[]]]]]]]]
Vehicle, All Terrain, Off Road	34.00 / hour
Vehicle, Automobile	
Vehicle, Emergency Response with generator	
Vehicle, Light Duty (Pick-up, Jeep, Van)	
Vehicle, Light Duty (Pick-up, Jeep, Van)	
Vehicle, Medium Duty (Cube Vans, Econovan) with no liftgate	
Vehicle, Medium Duty (Cube Vans, Econovan) with no liftgate	
Vehicle, Medium Duty Van (< 18') with power liftgate	
Vehicle, Heavy Duty Van (>18') with power liftgate	
Vehicle, Heavy Duty, 4x4 Pick-up	
Vehicle, Heavy Duty, 4x4 Pick-up	
Vehicle, Quick Response	
Vehicle, Service / Welding Truck	
Vehicle, Stake Rack Truck	
75.15.6, 515.16 1, 461.	

Time and Material rates are subject to change without notice.

# **HEAVY EQUIPMENT**\*

# PRICE / UNIT

Mobilization/demobilization will be charged in addition to re	ental.
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Excavator* (31,000 lbs or equivalent) (8-hour minimum)	167.00 / hour
Bull Dozer* (16,000 lbs or equivalent) (8-hour minimum)	100.00 / hour
Backhoe* (9600 lbs or equivalent) (8-hour minimum)	67.00 / hour
Skid Steer Loader* (6000 lbs or equivalent) (8-hour minimum)	56.00 / hour
Dump Truck (6-wheel, permitted)	
Dump Truck (10-wheel, permitted)	67.00 / hour
Dump Trailer*(permitted) (tractor is extra)	45.00 / hour
Heavy Equipment Trailer (truck or tractor is extra)	34.00 / hour
Heavy Equipment Trailer (truck or tractor is extra)	167.00 / shift
Low Boy Trailer(truck or tractor is extra)	45.00 / hour
Low Boy Trailer(truck or tractor is extra)	223.00 / shift
Rolloff Box (20 yard)(delivery extra)	34.00 / day
Rolloff Box (20 yard)(delivery extra)	167.00 / week
WATER BORNE EQUIPMENT	PRICE / UNIT
Boom, Harbor Containment (rental) per foot	8 00 / wook
Boat, Power (16' - 20') (8-hour minimum)	
Boat, Power (<16') (8-hour minimum)	
Boat, Without Motor	
Boat, Without Motol	133.00 / Stillt
	<del></del>
PUMPS, COMPRESSORS, GENERATORS, AND HOSES	PRICE / UNIT
Air Compressor (<50 cfm with 100' Hose)	106.00 / shift
Air Compressor (<50 cfm with 100' Hose)	106.00 / shift 139.00 / shift
Air Compressor (<50 cfm with 100' Hose)	
Air Compressor (<50 cfm with 100' Hose)  Air Compressor (50 to 150 cfm with 100' Hose).  Air Compressor (>150 cfm with 100' Hose)  Generator (<2,500 watt)	
Air Compressor (<50 cfm with 100' Hose) Air Compressor (50 to 150 cfm with 100' Hose) Air Compressor (>150 cfm with 100' Hose) Generator (<2,500 watt) Generator (2,500 to 5,000 watt)	
Air Compressor (<50 cfm with 100' Hose)  Air Compressor (50 to 150 cfm with 100' Hose)  Air Compressor (>150 cfm with 100' Hose)  Generator (<2,500 watt)  Generator (2,500 to 5,000 watt)  Hose, Air Compressor per 50' length	
Air Compressor (<50 cfm with 100' Hose)  Air Compressor (50 to 150 cfm with 100' Hose)  Air Compressor (>150 cfm with 100' Hose)  Generator (<2,500 watt)  Generator (2,500 to 5,000 watt)  Hose, Air Compressor per 50' length  Hose, Chemical Transfer (1") per 10' length	
Air Compressor (<50 cfm with 100' Hose) Air Compressor (50 to 150 cfm with 100' Hose) Air Compressor (>150 cfm with 100' Hose) Generator (<2,500 watt) Generator (2,500 to 5,000 watt) Hose, Air Compressor per 50' length Hose, Chemical Transfer (1") per 10' length Hose, Transfer (1") per 10' length	
Air Compressor (<50 cfm with 100' Hose) Air Compressor (50 to 150 cfm with 100' Hose) Air Compressor (>150 cfm with 100' Hose) Generator (<2,500 watt) Generator (2,500 to 5,000 watt) Hose, Air Compressor per 50' length Hose, Chemical Transfer (1") per 10' length Hose, Transfer (1") per 10' length Hose, Transfer (2") per 10' length	
Air Compressor (<50 cfm with 100' Hose) Air Compressor (50 to 150 cfm with 100' Hose) Air Compressor (>150 cfm with 100' Hose) Generator (<2,500 watt) Generator (2,500 to 5,000 watt) Hose, Air Compressor per 50' length Hose, Chemical Transfer (1") per 10' length Hose, Transfer (1") per 10' length Hose, Transfer (2") per 10' length Hose, Transfer (3") per 10' length	
Air Compressor (<50 cfm with 100' Hose) Air Compressor (50 to 150 cfm with 100' Hose) Air Compressor (>150 cfm with 100' Hose) Generator (<2,500 watt) Generator (2,500 to 5,000 watt) Hose, Air Compressor per 50' length Hose, Chemical Transfer (1") per 10' length Hose, Transfer (1") per 10' length Hose, Transfer (2") per 10' length Hose, Transfer (3") per 10' length Hose, Transfer (4") per 10' length	
Air Compressor (<50 cfm with 100' Hose) Air Compressor (50 to 150 cfm with 100' Hose) Air Compressor (>150 cfm with 100' Hose) Generator (<2,500 watt) Generator (2,500 to 5,000 watt) Hose, Air Compressor per 50' length Hose, Chemical Transfer (1") per 10' length Hose, Transfer (1") per 10' length Hose, Transfer (2") per 10' length Hose, Transfer (3") per 10' length Hose, Transfer (4") per 10' length Hose, Transfer (4") per 10' length Hose, Transfer (6") per 10' length	
Air Compressor (<50 cfm with 100' Hose) Air Compressor (50 to 150 cfm with 100' Hose) Air Compressor (>150 cfm with 100' Hose) Generator (<2,500 watt) Generator (2,500 to 5,000 watt) Hose, Air Compressor per 50' length Hose, Chemical Transfer (1") per 10' length Hose, Transfer (1") per 10' length Hose, Transfer (2") per 10' length Hose, Transfer (3") per 10' length Hose, Transfer (4") per 10' length	
Air Compressor (<50 cfm with 100' Hose) Air Compressor (50 to 150 cfm with 100' Hose) Air Compressor (>150 cfm with 100' Hose) Generator (<2,500 watt) Generator (2,500 to 5,000 watt) Hose, Air Compressor per 50' length Hose, Chemical Transfer (1") per 10' length Hose, Transfer (1") per 10' length Hose, Transfer (2") per 10' length Hose, Transfer (3") per 10' length Hose, Transfer (4") per 10' length Hose, Transfer (6") per 10' length	106.00 / shift 139.00 / shift 195.00 / shift 78.00 / shift 123.00 / shift 14.00 / shift 16.00 / shift 8.00 / shift 9.00 / shift 13.00 / shift 17.00 / shift 19.00 / shift
Air Compressor (<50 cfm with 100' Hose) Air Compressor (50 to 150 cfm with 100' Hose) Air Compressor (>150 cfm with 100' Hose) Generator (<2,500 watt) Generator (2,500 to 5,000 watt) Hose, Air Compressor per 50' length Hose, Chemical Transfer (1") per 10' length Hose, Transfer (1") per 10' length Hose, Transfer (2") per 10' length Hose, Transfer (3") per 10' length Hose, Transfer (4") per 10' length Hose, Transfer (6") per 10' length	106.00 / shift 139.00 / shift 195.00 / shift 78.00 / shift 123.00 / shift 14.00 / shift 16.00 / shift 8.00 / shift 9.00 / shift 13.00 / shift 17.00 / shift 19.00 / shift 34.00 / shift 34.00 / shift
Air Compressor (<50 cfm with 100' Hose) Air Compressor (50 to 150 cfm with 100' Hose) Air Compressor (>150 cfm with 100' Hose) Generator (<2,500 watt) Generator (2,500 to 5,000 watt) Hose, Air Compressor per 50' length Hose, Chemical Transfer (1") per 10' length Hose, Transfer (1") per 10' length Hose, Transfer (2") per 10' length Hose, Transfer (3") per 10' length Hose, Transfer (4") per 10' length Hose, Transfer (6") per 10' length Hose, Transfer (6") per 10' length Hose, Transfer (6") per 10' length Hose, Fire per 50' length (Additional Hoses in Section F of Supplies and Materials) Pump, Basement Sump	106.00 / shift 139.00 / shift 195.00 / shift 78.00 / shift 123.00 / shift 14.00 / shift 16.00 / shift 8.00 / shift 9.00 / shift 13.00 / shift 17.00 / shift 19.00 / shift 34.00 / shift 34.00 / shift
Air Compressor (<50 cfm with 100' Hose) Air Compressor (50 to 150 cfm with 100' Hose) Air Compressor (>150 cfm with 100' Hose) Generator (<2,500 watt) Generator (2,500 to 5,000 watt) Hose, Air Compressor per 50' length Hose, Chemical Transfer (1") per 10' length Hose, Transfer (1") per 10' length Hose, Transfer (2") per 10' length Hose, Transfer (3") per 10' length Hose, Transfer (4") per 10' length Hose, Transfer (6") per 10' length Hose, Transfer (6") per 10' length Hose, Fire per 50' length (Additional Hoses in Section F of Supplies and Materials) Pump, Basement Sump Pump, Centrifugal (1") Pump, Centrifugal (2") Pump, Manual Transfer	106.00 / shift 139.00 / shift 195.00 / shift 78.00 / shift 123.00 / shift 123.00 / shift 14.00 / shift 16.00 / shift 8.00 / shift 17.00 / shift 17.00 / shift 19.00 / shift 34.00 / shift 34.00 / shift 34.00 / shift 56.00 / shift 84.00 / shift
Air Compressor (<50 cfm with 100' Hose) Air Compressor (50 to 150 cfm with 100' Hose) Air Compressor (>150 cfm with 100' Hose) Generator (<2,500 watt) Generator (2,500 to 5,000 watt) Hose, Air Compressor per 50' length Hose, Chemical Transfer (1") per 10' length Hose, Transfer (1") per 10' length Hose, Transfer (2") per 10' length Hose, Transfer (3") per 10' length Hose, Transfer (6") per 10' length Hose, Transfer (6") per 10' length Hose, Fire per 50' length (Additional Hoses in Section F of Supplies and Materials) Pump, Basement Sump Pump, Centrifugal (1") Pump, Centrifugal (2") Pump, Manual Transfer Pump, Pneumatic Chemical (up To 1")	106.00 / shift 139.00 / shift 195.00 / shift 78.00 / shift 123.00 / shift 123.00 / shift 14.00 / shift 16.00 / shift 13.00 / shift 17.00 / shift 19.00 / shift 19.00 / shift 34.00 / shift 34.00 / shift 56.00 / shift 84.00 / shift 145.00 / shift
Air Compressor (<50 cfm with 100' Hose) Air Compressor (50 to 150 cfm with 100' Hose) Air Compressor (>150 cfm with 100' Hose) Generator (<2,500 watt) Generator (2,500 to 5,000 watt) Hose, Air Compressor per 50' length Hose, Chemical Transfer (1") per 10' length Hose, Transfer (2") per 10' length Hose, Transfer (3") per 10' length Hose, Transfer (4") per 10' length Hose, Transfer (6") per 10' length Hose, Transfer (6") per 10' length Hose, Fire per 50' length (Additional Hoses in Section F of Supplies and Materials) Pump, Basement Sump Pump, Centrifugal (1") Pump, Centrifugal (2") Pump, Manual Transfer Pump, Pneumatic Chemical (up To 1") Pump, Pneumatic (1")	106.00 / shift 139.00 / shift 195.00 / shift 78.00 / shift 123.00 / shift 14.00 / shift 16.00 / shift 8.00 / shift 13.00 / shift 17.00 / shift 17.00 / shift 19.00 / shift 34.00 / shift 34.00 / shift 56.00 / shift 84.00 / shift 39.00 / shift 39.00 / shift 39.00 / shift
Air Compressor (<50 cfm with 100' Hose) Air Compressor (50 to 150 cfm with 100' Hose) Air Compressor (>150 cfm with 100' Hose) Generator (<2,500 watt) Generator (2,500 to 5,000 watt) Hose, Air Compressor per 50' length Hose, Chemical Transfer (1") per 10' length Hose, Transfer (1") per 10' length Hose, Transfer (2") per 10' length Hose, Transfer (3") per 10' length Hose, Transfer (4") per 10' length Hose, Transfer (6") per 10' length Hose, Transfer (6") per 10' length Hose, Fire per 50' length (Additional Hoses in Section F of Supplies and Materials) Pump, Basement Sump Pump, Centrifugal (1") Pump, Centrifugal (2") Pump, Manual Transfer Pump, Pneumatic Chemical (up To 1") Pump, Pneumatic (1").	106.00 / shift 139.00 / shift 195.00 / shift 78.00 / shift 123.00 / shift 123.00 / shift 14.00 / shift 16.00 / shift 9.00 / shift 13.00 / shift 17.00 / shift 19.00 / shift 34.00 / shift 34.00 / shift 34.00 / shift 34.00 / shift 156.00 / shift 84.00 / shift 145.00 / shift 145.00 / shift
Air Compressor (<50 cfm with 100' Hose) Air Compressor (50 to 150 cfm with 100' Hose) Air Compressor (>150 cfm with 100' Hose) Generator (<2,500 watt) Generator (2,500 to 5,000 watt) Hose, Air Compressor per 50' length Hose, Chemical Transfer (1") per 10' length Hose, Transfer (1") per 10' length Hose, Transfer (2") per 10' length Hose, Transfer (3") per 10' length Hose, Transfer (6") per 10' length Hose, Transfer (6") per 10' length Hose, Fire per 50' length  (Additional Hoses in Section F of Supplies and Materials) Pump, Basement Sump Pump, Centrifugal (1") Pump, Centrifugal (2") Pump, Manual Transfer Pump, Pneumatic Chemical (up To 1")	106.00 / shift 139.00 / shift 195.00 / shift 78.00 / shift 123.00 / shift 123.00 / shift 14.00 / shift 16.00 / shift 9.00 / shift 13.00 / shift 17.00 / shift 19.00 / shift 34.00 / shift 34.00 / shift 34.00 / shift 34.00 / shift 156.00 / shift 84.00 / shift 145.00 / shift 145.00 / shift

Time and Material rates are subject to change without notice.

Pump, Submersible (1")	
Pump, Submersible (2")	
Pump, Submersible (3")	
Pump, Utility Trash (2")	
Pump, Utility Trash (3").	
- amp, santy track (o )	104.307 31111
REMEDIATION AND RECOVERY EQUIPMENT	PRICE / UNIT
Acid Wash System (pumps, hoses, tank)	1120.00 / shift
Air Lift Equipment (without compressor)	56.00 / shift
Anemometer	
Bag Filter Housing (80 gpm)	
(replacement elements are extra - see Section B of Supplies and Materials)	
Bio-Remediation / Applicator	134.00 / shift
Dewatering System Manifold (carbon units not included)	
Dewatering System (carbon units not included)	
Field Sampling Kit (for five samples)	56.00 / each
Filter Scavenger	556.00 / week
Flowmeter (1" Brass Mechanical Totalizer)	56.00 / shift
Magnahelic Gauges	17.00 / shift
Multimeter, Electric	17.00 / shift
Oil/Water Separator (20 gpm) (one-week minimum)	445.00 / week
Oil/Water Interface Probe	62.00 / shift
Pump, Peristaltic	
Recovery Tank (300 gal) (one-week minimum)	112.00 / week
Recovery Tank (500 gal) (one-week minimum)	
Recovery Tank (1,000 gal) (one-week minimum)	223.00 / week
Recovery Tank (1,500 gal) (one-week minimum)	
Redi-Flow 2 Pump and Controller	
Regenerative Blower (Rotron 1 hp)	139.00 / shift
Rotary Vane Air Sparging Unit (15PS2-18 cfm)	389.00 / shift
Skimmer, Duck Bill (2")	28.00 / shift
Soil Vapor Extraction Test System (blower, gauges, hoses)	278.00 / shift
Soil Vapor Extraction / Air Sparge Pilot System	
Spill Buster Jr, Product Recovery System	
Water Level Indicator	34.00 / shift
Water Table Depression Pump (up to 3/4 hp)	
Water Table Depression Pump (up to 3/4 hp) with probe and panel	
MISCELLANEOUS TOOLS AND EQUIPMENT	PRICE / UNIT
* Mobilization/demobilization will be charged in addition to rental.	
Acatulana Tarah Syatam	04 00 / abit
Acetylene Torch System	34 00 / day
Air Cleaner, Carbon (100 - 500 cfm)	
Air Cleaner, Carbon (100 - 500 cfm)	
Air Cleaner, Carbon (500 - 1,000 cfm)	
Air Cleaner, Carbon (500 - 1,000 cfm)	270.00 / week
Time and Material rates are subject to change without r	notice.

Air Hammer / Impact Wrench	39.00 / shift
Drilling Kit, MC306 Aluminum Tanker Rollover	
(Specialty item. Price includes drills, bits, cables, spark resistant wrenches, and hammers of	
Restricted use by qualified personnel only.)	•
Drum Cart	
Exhaust Fan, Explosion Proof (<24")	
Exhaust Fan, Explosion Proof (>24")	89.00 / shift
Hand Tool Kit	34.00 / shift
Heater, Salamander or Propane Heater	56.00 / shift
Jackhammer with 50' hose(air)	84.00 / shift
Jackhammer with 50' hose(electric)	139.00 / shift
Jackhammer Bits	28.00 / shift
Ladder (<12')	
Ladder, Extension	
Lamp, Explosion-Proof	
Lighting System, Portable	
Lighting System, Trailer Mounted	
Line Jetter	
Line Snake	
Plate Tamper or Jumping Jack	
Portable Cement Mixer	
Pressure Washer, Hot & Cold with generator (5,000 psi)	
Pressure Washer, Hot Water (5,000 psi)	
Pressure Washer, Hot Water/Steam (up To 1,500 psi)	
Pressure Washer, Cold Water (up To 2,000 psi)	
Pressure Washer, Cold Water (2,000 - 3,000 psi)	156.00 / shift
Saw, Chain	84.00 / shift
	170 00 / - 6:4
Saw, Cut Off, with blade (14" walk-behind, diamond tip blades extra)	
Saw, Cut Off, with blade (hand-held)	134.00 / shift
Saw, Cut Off, with blade (hand-held)	134.00 / shift
Saw, Cut Off, with blade (hand-held)	134.00 / shift 50.00 / shift
Saw, Cut Off, with blade (hand-held)  Saw, Reciprocating with blade  (Replacement Blades - see Section F of Supplies and Materials)  Vacuum Cleaner, Mercury (filters extra)	134.00 / shift 50.00 / shift 528.00 / shift
Saw, Cut Off, with blade (hand-held)  Saw, Reciprocating with blade (Replacement Blades - see Section F of Supplies and Materials)  Vacuum Cleaner, Mercury (filters extra)  Vacuum Cleaner, Wet/Dry	134.00 / shift 50.00 / shift 528.00 / shift 56.00 / shift
Saw, Cut Off, with blade (hand-held)  Saw, Reciprocating with blade (Replacement Blades - see Section F of Supplies and Materials)  Vacuum Cleaner, Mercury (filters extra)  Vacuum Cleaner, Wet/Dry  Vacuum Drum Header (used with vacuum truck)	
Saw, Cut Off, with blade (hand-held)  Saw, Reciprocating with blade (Replacement Blades - see Section F of Supplies and Materials)  Vacuum Cleaner, Mercury (filters extra)  Vacuum Cleaner, Wet/Dry  Vacuum Drum Header (used with vacuum truck).  Vacuum Drum Header (used with air compressor)	
Saw, Cut Off, with blade (hand-held)  Saw, Reciprocating with blade (Replacement Blades - see Section F of Supplies and Materials)  Vacuum Cleaner, Mercury (filters extra)  Vacuum Cleaner, Wet/Dry  Vacuum Drum Header (used with vacuum truck).  Vacuum Drum Header (used with air compressor)	
Saw, Cut Off, with blade (hand-held)  Saw, Reciprocating with blade (Replacement Blades - see Section F of Supplies and Materials)  Vacuum Cleaner, Mercury (filters extra)  Vacuum Cleaner, Wet/Dry  Vacuum Drum Header (used with vacuum truck)	
Saw, Cut Off, with blade (hand-held).  Saw, Reciprocating with blade (Replacement Blades - see Section F of Supplies and Materials)  Vacuum Cleaner, Mercury (filters extra)  Vacuum Cleaner, Wet/Dry  Vacuum Drum Header (used with vacuum truck)  Vacuum Drum Header (used with air compressor)	
Saw, Cut Off, with blade (hand-held).  Saw, Reciprocating with blade (Replacement Blades - see Section F of Supplies and Materials)  Vacuum Cleaner, Mercury (filters extra)  Vacuum Cleaner, Wet/Dry  Vacuum Drum Header (used with vacuum truck)  Vacuum Drum Header (used with air compressor).  Weed Cutter  Welder, Arc	
Saw, Cut Off, with blade (hand-held).  Saw, Reciprocating with blade	
Saw, Cut Off, with blade (hand-held).  Saw, Reciprocating with blade (Replacement Blades - see Section F of Supplies and Materials)  Vacuum Cleaner, Mercury (filters extra)  Vacuum Cleaner, Wet/Dry  Vacuum Drum Header (used with vacuum truck)  Vacuum Drum Header (used with air compressor).  Weed Cutter  Welder, Arc	
Saw, Cut Off, with blade (hand-held).  Saw, Reciprocating with blade	
Saw, Cut Off, with blade (hand-held) Saw, Reciprocating with blade (Replacement Blades - see Section F of Supplies and Materials) Vacuum Cleaner, Mercury (filters extra) Vacuum Cleaner, Wet/Dry Vacuum Drum Header (used with vacuum truck) Vacuum Drum Header (used with air compressor) Weed Cutter Welder, Arc  SAMPLING EQUIPMENT  Air Sampling Vacuum Box Bailers, Stainless Steel Bailers, Teflon	
Saw, Cut Off, with blade (hand-held) Saw, Reciprocating with blade (Replacement Blades - see Section F of Supplies and Materials) Vacuum Cleaner, Mercury (filters extra) Vacuum Cleaner, Wet/Dry Vacuum Drum Header (used with vacuum truck). Vacuum Drum Header (used with air compressor) Weed Cutter Welder, Arc  SAMPLING EQUIPMENT  Air Sampling Vacuum Box Bailers, Stainless Steel Bailers, Teflon Bailers, Clear PVC.	
Saw, Cut Off, with blade (hand-held) Saw, Reciprocating with blade (Replacement Blades - see Section F of Supplies and Materials) Vacuum Cleaner, Mercury (filters extra) Vacuum Cleaner, Wet/Dry Vacuum Drum Header (used with vacuum truck). Vacuum Drum Header (used with air compressor) Weed Cutter Welder, Arc  SAMPLING EQUIPMENT  Air Sampling Vacuum Box Bailers, Stainless Steel Bailers, Teflon Bailers, Clear PVC (Additional Bailers are in Section B of Supplies and Materials)	
Saw, Cut Off, with blade (hand-held) Saw, Reciprocating with blade	
Saw, Cut Off, with blade (hand-held) Saw, Reciprocating with blade (Replacement Blades - see Section F of Supplies and Materials) Vacuum Cleaner, Mercury (filters extra) Vacuum Cleaner, Wet/Dry Vacuum Drum Header (used with vacuum truck). Vacuum Drum Header (used with air compressor) Weed Cutter Welder, Arc  SAMPLING EQUIPMENT  Air Sampling Vacuum Box Bailers, Stainless Steel Bailers, Teflon Bailers, Clear PVC (Additional Bailers are in Section B of Supplies and Materials)	
Saw, Cut Off, with blade (hand-held) Saw, Reciprocating with blade	
Saw, Cut Off, with blade (hand-held) Saw, Reciprocating with blade (Replacement Blades - see Section F of Supplies and Materials) Vacuum Cleaner, Mercury (filters extra) Vacuum Cleaner, Wet/Dry Vacuum Drum Header (used with vacuum truck) Vacuum Drum Header (used with air compressor) Weed Cutter Welder, Arc  SAMPLING EQUIPMENT  Air Sampling Vacuum Box Bailers, Stainless Steel Bailers, Teflon Bailers, Clear PVC (Additional Bailers are in Section B of Supplies and Materials) Personal Sampling Pump, Low Flow (two-shift minimum) Personal Sampling Pump Calibration Unit	
Saw, Cut Off, with blade (hand-held) Saw, Reciprocating with blade (Replacement Blades - see Section F of Supplies and Materials) Vacuum Cleaner, Mercury (filters extra) Vacuum Cleaner, Wet/Dry Vacuum Drum Header (used with vacuum truck) Vacuum Drum Header (used with air compressor) Weed Cutter Welder, Arc  SAMPLING EQUIPMENT  Air Sampling Vacuum Box Bailers, Stainless Steel Bailers, Teflon Bailers, Clear PVC (Additional Bailers are in Section B of Supplies and Materials) Personal Sampling Pump, Low Flow (two-shift minimum) Personal Sampling Pump Calibration Unit Sampler, Kemmerer	
Saw, Cut Off, with blade (hand-held) Saw, Reciprocating with blade	
Saw, Cut Off, with blade (hand-held) Saw, Reciprocating with blade (Replacement Blades - see Section F of Supplies and Materials) Vacuum Cleaner, Mercury (filters extra) Vacuum Cleaner, Wet/Dry Vacuum Drum Header (used with vacuum truck) Vacuum Drum Header (used with air compressor) Weed Cutter Welder, Arc  SAMPLING EQUIPMENT  Air Sampling Vacuum Box Bailers, Stainless Steel Bailers, Teflon Bailers, Clear PVC (Additional Bailers are in Section B of Supplies and Materials) Personal Sampling Pump, Low Flow (two-shift minimum) Personal Sampling Pump Calibration Unit Sampler, Kemmerer	

Sludge Judge	56.00 / shift
Soil Corer	50.00 / shift
Soil Auger	84.00 / shift
Soil Boring System (KVA Hefty System, replacement parts extra)	167.00 / shift
Water Sampling Kit For KVA	56.00 / shift
INSTRUMENTATION AND MONITORING EQUIPMENT	PRICE / UNIT
Air Monitoring Pump, Calibration Unit	67.00 / shift
Dissolved Oxygen Meter	
Dissolved Solids Sensor (Hanna Instruments)	20.00 / shift
Draeger HAZMAT Kit	84.00 / shift
(Draeger Detection Tubes extra - see Section C of Supplies and Materials)	
Oxygen Monitor	112.00 / shift
Explosion Meter/O <sub>2</sub> Meter	67.00 / shift
Field Screening Kit (some tests extra)	167.00 / shift
Indoor Air Quality Monitor (Dr@ger Multiwarn or equivalent)	173.00 / shift
Lead-In-Air Test	223.00 / test
Metal Detector	56.00 / shift
Multigas Meter (O <sub>2</sub> , LEL, CO, H <sub>2</sub> S)	178.00 / shift
pH, Temperature, Conductivity Meter	67.00 / shift
pH Sensor (hand-held instrument)	
Photoionization Detector	
Radiation Meter	
Sound/Noise Dosimeter	
Sound Spectrum Analyzer	
Survey Flags	
Survey Transit and Rod	
Tank Wall Thickness Testing, Ultrasonic	
Temperature Sensor with Probe (Hanna Instruments)	
Underground Utility Detector	
Vacuum Box Seam Tester	
Water Contaminant Determination Kit (tubes extra)	
Water Hardness Tester	
HEALTH AND SAFETY / PERSONAL PROTECTIVE EQUIPMENT	PRICE / UNIT
Personal Protective Clothing, Level A, per Person	778.00 / shift
Personal Protective Clothing, High Level B, per Person	412.00 / shift
Personal Protective Clothing, Low Level B, per Person	284.00 / shift
Personal Protective Clothing, High Level C, per Person	
Personal Protective Clothing, Low Level C, per Person	84.00 / shift
Time and Material rates are subject to change without no	otice.

Environmental Products & Services of Vermont, Inc.

Levels A and B include one personal protective suit, one pair of inner and outer gloves, one bottle of air, air purifier and escape pack. If an air compressor is required, add the compressor rental cost. Level C includes one personal protective suit, one pair of inner and outer gloves, and one respirator cartridge set. If double suits are required, add the cost of the inner suit. Special use suits, gloves, or other personal protective equipment may change the above prices. All personal protective equipment charges are per person.

Air-Purifying Respirator with one cartridge set	
Cascade System	167.00 / SNIπ
Self-Contained Breathing Apparatus Standby Unit	
Eye Wash Station (Portable)	
Chest Waders	39.00 / shift
Decontamination, Personnel Unit	56.00 / shift
Decontamination, Personnel Shower	167.00 / shift
Decontamination System, Full (wet/heavy contamination)	278.00 / shift
Decontamination System, Limited (wet/minor contamination)	223.00 / shift
Decontamination System, Full (dry for water insolubles or reactives)	167.00 / shift
Fire Extinguisher (ABC, 20 LB)	23.00 / shift
Fire Extinguisher Refill (ABC, 20 LB)	
Fire Extinguisher (Class D, Metal Fires) (refills are extra)	
Flashover Suit, Full-Coverage Aluminized, with Nomex Coverall	
(Price does not include Level A, B, or C suits and PPE cost.)	
Hip Waders	28.00 / shift
Lockout/Tagout System (each)	28.00 / shift
Safety Harness with Life Line	
Safety Fence, per 100 ft (one-week minimum)	
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Traffic Control (cones, barricades, flags, up to 25 pieces)	28.00 / shift
Tripod Retrieval System, Confined Space Entry	84.00 / shift

#### **HEALTH, SAFETY AND COMPLIANCE TRAINING**

Per person rates can vary based upon schedule, location, and number of participants. Quantity discounts are available. Visit www.eps-inc.com and select "Compliance Training" for currently scheduled classes. For more information about specific training programs, to register for a class, or for on-site training, contact the EHS Manager (315) 476-4410 (Syracuse, NY area) or 1-800-262-1012.

4 Hour HAZCOM	167.00 / person
8 Hour HAZWOPER Awareness	
16 Hour HAZWOPER 1 <sup>St</sup> Responder	
24 Hour HAZWOPER Technician	
40 Hour HAZWOPER Site Worker	750.00 / person
8 Hour HAZWOPER 24/40 Refresher	184.00 / person
8 Hour Confined Space Entry	195.00 / person
8 Hour Confined Space Rescue	195.00 / person
8 Hour Hazardous Materials Transportation	278.00 / person
4 Hour Bloodborne Pathogen	
8 Hour RCRA	
4 Hour Powered Industrial Truck (Forklift)	195.00 / person
4 Hour Powered Industrial Truck Refresher (Forklift)	195.00 / person
4 Hour Lockout / Tagout	167.00 / person

Standard First Aid	•
4 Hour Fall Protection	167.00 / person
4 Hour Respiratory Training	167.00 / person
COMMUNICATIONS EQUIPMENT	PRICE / UNIT
Camera (includes one roll of film and processing)	39.00 / shift
Digital Camera (includes one CD of photos and up to 24 printed pictures)	
Film and Processing (per 24 exposure)	
2-Way Radio Communication (per set)	
Mobile Telephone	
Telephone Use Charges (5 minutes or less)	
Fax Machine	
Portable Computer with Hazmat Software	
Portable Computer with Hazmat Software, Fax/Modem/Printer	
Copy Machine.	
ASBESTOS ABATEMENT	
A. Equipment	Price / Unit
Airless Sprayer	39.00 / shift
Electrical GFI 3-1 Splitter	6.00 / shift
Extension Cords	
GFI Whips	
HEPA Vac	
HEPA Vac Filter	
Hose, Garden	
Hot Water Heater	
Hudson Sprayer	
Micro Trap (Negative Air Machine)	56 00 / shift
Panel Box	
PAPRs	
PAPR Filters	
Personal Pumps (Air Samples)	
Respirator 1/2 Face	
Respirator Full Face	
Single Decontamination Shower	
Stapler	
Water/Filtration Unit	34.00 / SIM
B. Material	Price / Unit
Asbestos Bags, 33x50, FW 6 Mil, Printed	1.50 / each
Asbestos Bags, 33x50, FW 6 Mil, Unprinted	
Air Sample Cassettes	
· ··· · · · · · · · · · · · · · · · ·	00.00 /
Barrels, Fiber15 gallon	28.00 / each

Barrels, Fiber 30 gallon	
Danger Labels	1.00 / each
Danger Signs	8.00 / each
Danger Tape	
Disposable Towels	60.00 / case
Double Sided Tape	24.00 / roll
Encapsulate Foster	22.00 / gallon
Foam Sealant	10.00 / can
Gloves, Rubber	21.00 / pair
Glove bags - Regular (44x60)	11.00 / each
HEPA-Filter (24 x 24 x 11) (negative air machine)	278.00 / each
Mastic Remover, 1 gallon	
Mastic Remover, 5 gallon	
Mastic Remover, 55 gallon drum	
Mop Heads	
North Respirator Cartridges	5.00 / each
Poly Duct 12 x 500	
Poly Duct, Rigid 12" (25' roll)	56.00 / roll
Polyethylene Sheeting 6 Mil F.R. (20 x 100)	123.00 / roll
Polyethylene Sheeting, Reinforced (20 x 100)	
Polypropylene Suits (3x)	
Pre-Filters (negative air machine)	
Rags 50 lbs/case	58.00 / case
Respirator Wipes 100/box	
Scrub Pads 660	
Secondary Filters (2") (negative air machine)	
Spray Glue/Adhesive	
Staples	
TYVEK (Brief) 100/case	
Utility Knife Blades 100/box	
Vacuum Bags	
Water Filters (All Sizes)	
Wet Wrap 80/case	
Wetting Agent.	
Wire Brush	

#### **SUPPLIES AND MATERIALS**

A. Drums and Containers	Price / Unit
Drum, 1A1, 16 gauge, 55 gal (Steel, Closed top 17C)	62.00 / each 67.00 / each 53.00 / each 53.00 / each 49.00 / each 48.00 / each
Drum, 1H2, 55 gal (Poly, Open top, DOT 34)	65.00 / each

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Drum, 1H2, 30 gal (Poly, Open top)	48.00 / each
Drum, 1H2, 15 gal (Poly, Open top)	34.00 / each
Drum 1A1, 15 gal (Steel, Open top)	34.00 / each
Drum, 1A2, Overpack, 110 gal (Steel)	362.00 / each
Drum, 1A2, Overpack, 85 gal (Steel)	
Drum, 1H2, Overpack, 95 gal (Poly)	217.00 / each
Drum, 1G2, 30 gal (Fiber, Open top)	39.00 / each
Drum Lids (17H/17C)	17.00 / each
HAZMAT Box, 4G, Cubic Yard	139.00 / each
Liners, Drum, 85 gal	17.00 / each
Liners, Drum, 55 gal	
Liners, Rolloff 22'	
Liners, Dump Trailer 35'	84.00 / each
Pail, 1H2, 5 gal (Plastic)	
Pail, 1A2, 5 gal (Steel)	17.00 / each
Poly Bags, HD, 85 gal	
Shipping Labels	2.00 / each
B. Geoscience Supplies	Price / Unit
Des Eilten Denle er verst Element (00 mans besseiner)	0.00 (
Bag Filter Replacement Element (80 gpm housing)	9.00 / each
Bailer, Clear PVC, 1.66" x 15"	69.00 / each
Bailer, Disposable Polyethylene, 1.5" x 36"	
Bentonite, Pellets (5 lbs.)	
Bentonite, Powdered (50 lbs.)	
Carbon, Activated, for Gas Treatment Units	
Carbon, Activated, for Water Treatment Units	4.00 / pouna
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon)	750.00 / unit
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon) Carbon Treatment Units, Gas Phase (up to 100 cfm, includes carbon)	750.00 / unit 934.00 / unit
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon) Carbon Treatment Units, Gas Phase (up to 100 cfm, includes carbon) Carbon Drum Lids (55 gal)	
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon) Carbon Treatment Units, Gas Phase (up to 100 cfm, includes carbon) Carbon Drum Lids (55 gal)	
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon) Carbon Treatment Units, Gas Phase (up to 100 cfm, includes carbon) Carbon Drum Lids (55 gal)	
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon) Carbon Treatment Units, Gas Phase (up to 100 cfm, includes carbon) Carbon Drum Lids (55 gal)	
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon) Carbon Treatment Units, Gas Phase (up to 100 cfm, includes carbon) Carbon Drum Lids (55 gal) Foot Valve, Standard, 1"	
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon) Carbon Treatment Units, Gas Phase (up to 100 cfm, includes carbon) Carbon Drum Lids (55 gal) Foot Valve, Standard, 1" Hefty Nipples, 5/8" x 18" Hefty Nipples, Solid Hefty System, 4" Points Hefty System Shafts	
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon) Carbon Treatment Units, Gas Phase (up to 100 cfm, includes carbon) Carbon Drum Lids (55 gal) Foot Valve, Standard, 1" Hefty Nipples, 5/8" x 18" Hefty System, 4" Points Hefty System Shafts Hefty Tips, 5/8" x 18"	
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon) Carbon Treatment Units, Gas Phase (up to 100 cfm, includes carbon) Carbon Drum Lids (55 gal) Foot Valve, Standard, 1" Hefty Nipples, 5/8" x 18" Hefty Nipples, Solid Hefty System, 4" Points Hefty System Shafts Hefty Tips, 5/8" x 18" Insulation, Fiberglass 16"	
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon) Carbon Treatment Units, Gas Phase (up to 100 cfm, includes carbon) Carbon Drum Lids (55 gal) Foot Valve, Standard, 1" Hefty Nipples, 5/8" x 18" Hefty Nipples, Solid Hefty System, 4" Points Hefty System Shafts Hefty Tips, 5/8" x 18" Insulation, Fiberglass 16" Insulation, Fiberglass 24"	
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon) Carbon Treatment Units, Gas Phase (up to 100 cfm, includes carbon) Carbon Drum Lids (55 gal) Foot Valve, Standard, 1"	
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon) Carbon Treatment Units, Gas Phase (up to 100 cfm, includes carbon) Carbon Drum Lids (55 gal) Foot Valve, Standard, 1"	
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon) Carbon Treatment Units, Gas Phase (up to 100 cfm, includes carbon) Carbon Drum Lids (55 gal)	
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon) Carbon Treatment Units, Gas Phase (up to 100 cfm, includes carbon) Carbon Drum Lids (55 gal) Foot Valve, Standard, 1"	750.00 / unit 934.00 / unit 67.00 / each 23.00 / each 200.00 / each 34.00 / each 43.00 / each 556.00 / each 278.00 / each 34.00 / roll 3.00 / foot 3.00 / foot 4.00 / foot
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon) Carbon Treatment Units, Gas Phase (up to 100 cfm, includes carbon) Carbon Drum Lids (55 gal) Foot Valve, Standard, 1"	750.00 / unit 934.00 / unit 67.00 / each 23.00 / each 200.00 / each 34.00 / each 43.00 / each 556.00 / each 278.00 / roll 56.00 / roll 3.00 / foot 4.00 / foot 5.00 / foot
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon) Carbon Treatment Units, Gas Phase (up to 100 cfm, includes carbon) Carbon Drum Lids (55 gal) Foot Valve, Standard, 1" Hefty Nipples, 5/8" x 18" Hefty Nipples, Solid Hefty System, 4" Points Hefty System Shafts Hefty Tips, 5/8" x 18" Insulation, Fiberglass 16" Insulation, Fiberglass 24" Insulation, Pipe 1" Insulation, Pipe 1.5" Insulation, Pipe 2.5" Insulation, Pipe 3" Muriatic Acid	750.00 / unit 934.00 / unit 67.00 / each 23.00 / each 200.00 / each 34.00 / each 43.00 / each 556.00 / each 278.00 / each 34.00 / roll 3.00 / roll 3.00 / foot 4.00 / foot 5.00 / foot 3.00 / foot 3.00 / foot
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon) Carbon Treatment Units, Gas Phase (up to 100 cfm, includes carbon) Carbon Drum Lids (55 gal) Foot Valve, Standard, 1" Hefty Nipples, 5/8" x 18" Hefty Nipples, Solid Hefty System, 4" Points Hefty System Shafts Hefty Tips, 5/8" x 18" Insulation, Fiberglass 16" Insulation, Fiberglass 24" Insulation, Pipe 1" Insulation, Pipe 1.5" Insulation, Pipe 2" Insulation, Pipe 2.5" Insulation, Pipe 3" Muriatic Acid Packing, Air Stripper	750.00 / unit 934.00 / unit 67.00 / each 23.00 / each 200.00 / each 34.00 / each 43.00 / each 556.00 / each 278.00 / each 34.00 / roll 56.00 / roll 3.00 / foot 4.00 / foot 6.00 / foot 3.00 / foot 6.00 / foot
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon) Carbon Treatment Units, Gas Phase (up to 100 cfm, includes carbon) Carbon Drum Lids (55 gal) Foot Valve, Standard, 1" Hefty Nipples, 5/8" x 18" Hefty Nipples, Solid Hefty System, 4" Points Hefty System Shafts Hefty Tips, 5/8" x 18" Insulation, Fiberglass 16" Insulation, Fiberglass 24" Insulation, Pipe 1" Insulation, Pipe 1.5" Insulation, Pipe 2.5" Insulation, Pipe 3" Muriatic Acid Packing, Air Stripper Padlocks, Keyed Alike	750.00 / unit 934.00 / unit 67.00 / each 23.00 / each 200.00 / each 34.00 / each 43.00 / each 556.00 / each 278.00 / each 34.00 / roll 56.00 / roll 3.00 / foot 4.00 / foot 5.00 / foot 6.00 / foot 6.00 / gallon 67.00 / cu ft
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon) Carbon Treatment Units, Gas Phase (up to 100 cfm, includes carbon) Carbon Drum Lids (55 gal) Foot Valve, Standard, 1" Hefty Nipples, 5/8" x 18" Hefty Nipples, Solid Hefty System, 4" Points Hefty Tips, 5/8" x 18" Insulation, Fiberglass 16" Insulation, Fiberglass 24" Insulation, Pipe 1" Insulation, Pipe 1.5" Insulation, Pipe 2.5" Insulation, Pipe 3" Muriatic Acid Packing, Air Stripper Padlocks, Keyed Alike Paste, Water Finding (2.5 oz)	750.00 / unit 934.00 / unit 67.00 / each 23.00 / each 200.00 / each 34.00 / each 43.00 / each 556.00 / each 278.00 / roll 34.00 / roll 56.00 / roll 3.00 / foot 4.00 / foot 5.00 / foot 6.00 / foot 3.00 / gallon 67.00 / cu ft 17.00 / each
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon) Carbon Treatment Units, Gas Phase (up to 100 cfm, includes carbon) Carbon Drum Lids (55 gal) Foot Valve, Standard, 1" Hefty Nipples, 5/8" x 18" Hefty Nipples, Solid Hefty System, 4" Points Hefty System Shafts Hefty Tips, 5/8" x 18" Insulation, Fiberglass 16" Insulation, Fiberglass 24" Insulation, Pipe 1" Insulation, Pipe 1.5" Insulation, Pipe 2.5" Insulation, Pipe 3" Muriatic Acid Packing, Air Stripper Padlocks, Keyed Alike Paste, Water Finding (2.5 oz) Protective Well Casing, 4"	750.00 / unit 934.00 / unit 67.00 / each 23.00 / each 200.00 / each 34.00 / each 43.00 / each 556.00 / each 278.00 / roll 56.00 / roll 3.00 / foot 3.00 / foot 4.00 / foot 5.00 / foot 6.00 / foot 3.00 / gallon 67.00 / each 8.00 / each
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon) Carbon Treatment Units, Gas Phase (up to 100 cfm, includes carbon) Carbon Drum Lids (55 gal) Foot Valve, Standard, 1" Hefty Nipples, 5/8" x 18" Hefty Nipples, Solid Hefty System, 4" Points Hefty System Shafts Hefty Tips, 5/8" x 18" Insulation, Fiberglass 16" Insulation, Fiberglass 24" Insulation, Pipe 1" Insulation, Pipe 1.5" Insulation, Pipe 2" Insulation, Pipe 2.5" Insulation, Pipe 3" Muriatic Acid Packing, Air Stripper Padlocks, Keyed Alike Paste, Water Finding (2.5 oz) Protective Well Casing, 4" Protective Well Casing, 6"	750.00 / unit 934.00 / unit 67.00 / each 23.00 / each 200.00 / each 34.00 / each 43.00 / each 556.00 / each 278.00 / each 34.00 / roll 56.00 / roll 3.00 / foot 3.00 / foot 4.00 / foot 6.00 / foot 5.00 / foot 17.00 / each 8.00 / each 8.00 / each
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon) Carbon Treatment Units, Gas Phase (up to 100 cfm, includes carbon) Carbon Drum Lids (55 gal)	750.00 / unit 934.00 / unit 67.00 / each 23.00 / each 200.00 / each 34.00 / each 43.00 / each 556.00 / each 278.00 / roll 56.00 / roll 3.00 / foot 3.00 / foot 4.00 / foot 6.00 / foot 6.00 / foot 17.00 / each 8.00 / each 8.00 / each 17.00 / each 95.00 / each
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon) Carbon Treatment Units, Gas Phase (up to 100 cfm, includes carbon) Carbon Drum Lids (55 gal)	750.00 / unit 934.00 / unit
Carbon Treatment Units, Liquid Phase (up to 10 gpm, includes carbon) Carbon Treatment Units, Gas Phase (up to 100 cfm, includes carbon) Carbon Drum Lids (55 gal)	750.00 / unit 934.00 / unit 67.00 / each 23.00 / each 200.00 / each 34.00 / each 43.00 / each 556.00 / each 278.00 / roll 56.00 / roll 56.00 / roll 3.00 / foot 4.00 / foot 4.00 / foot 6.00 / foot 5.00 / gallon 67.00 / cu ft 17.00 / each 800 / each 95.00 / each

Road Box, 12" x 12"	106.00 / each
Road Box, 2' x 2', Standard	139.00 / each
Road Box, 2' x 2', Locking, Standard	
Road Box, 2' x 2', Locking, Heavy Duty, Water Load Rated	
Tape, Electric Heat	
Well Caps, Threaded, .5"	
Well Caps, Threaded, 2"	8 00 / each
Well Caps, Threaded 4"	17.00 / each
Well Caps, Threaded 6"	
Well Plugs, Threaded .5"	
Well Plugs, Threaded 2"	
Well Plugs, Threaded 4"	
Well Plugs, Threaded 6"	
Well Caps, Locking 2"	
Well Caps, Locking 4"	
Well Caps, Locking 6"	56.00 / each
Well Riser, PVC, Sch 40, .5"	3.00 / foot
Well Riser, PVC, Sch 40, 2"	4.00 / foot
Well Riser, PVC, Sch 40, 4"	
Well Riser, PVC, Sch 40, 6"	20.00 / foot
Well Screen, PVC, .010" slot, Sch 40, 2"	6.00 / foot
Well Screen, PVC, .020" slot, Sch 40, 2"	6.00 / foot
Well Screen, PVC, .010" slot, Sch 40, 4"	
Well Screen, PVC, .020" slot, Sch 40, 4"	12.00 / foot
Well Screen, PVC, .010" slot, Sch 40, 5"	4.00 / foot
Well Screen, PVC, .010" slot, Sch 40, 6"	26.00 / foot
Well Screen, PVC, .020" slot, Sch 40, 6"	26.00 / foot
C. Health and Safety Equipment	Price / Unit
	Price / Unit
C. Health and Safety Equipment  Boots, Pullover  Boots, PVC, with steel toe	<b>Price / Unit</b>
Boots, Pullover	Price / Unit25.00 / pair28.00 / pair
Boots, Pullover	Price / Unit25.00 / pair28.00 / pair12.00 / pair
Boots, Pullover Boots, PVC, with steel toe Boot Covers, HAZMAT Bottle Refill, SCBA	Price / Unit
Boots, Pullover	Price / Unit
Boots, Pullover Boots, PVC, with steel toe Boot Covers, HAZMAT Bottle Refill, SCBA Bottle Refill, Egress	Price / Unit
Boots, Pullover Boots, PVC, with steel toe Boot Covers, HAZMAT Bottle Refill, SCBA Bottle Refill, Egress Bottle Refill, In-line Air	Price / Unit
Boots, Pullover Boots, PVC, with steel toe Boot Covers, HAZMAT Bottle Refill, SCBA Bottle Refill, Egress Bottle Refill, In-line Air Draeger Detection Tubes, Glove Liners Gloves, Butyl	Price / Unit
Boots, Pullover Boots, PVC, with steel toe Boot Covers, HAZMAT Bottle Refill, SCBA Bottle Refill, Egress Bottle Refill, In-line Air Draeger Detection Tubes, Glove Liners Gloves, Butyl Gloves, Leather Palm, Work	Price / Unit
Boots, Pullover Boots, PVC, with steel toe Boot Covers, HAZMAT Bottle Refill, SCBA Bottle Refill, Egress Bottle Refill, In-line Air Draeger Detection Tubes, Glove Liners Gloves, Butyl Gloves, Leather Palm, Work Gloves, Neoprene	Price / Unit
Boots, Pullover Boots, PVC, with steel toe Boot Covers, HAZMAT Bottle Refill, SCBA Bottle Refill, Egress Bottle Refill, In-line Air Draeger Detection Tubes, Glove Liners Gloves, Butyl Gloves, Leather Palm, Work	Price / Unit
Boots, Pullover Boots, PVC, with steel toe Boot Covers, HAZMAT Bottle Refill, SCBA Bottle Refill, Egress Bottle Refill, In-line Air Draeger Detection Tubes, Glove Liners Gloves, Butyl Gloves, Leather Palm, Work Gloves, Neoprene	Price / Unit
Boots, Pullover Boots, PVC, with steel toe Boot Covers, HAZMAT Bottle Refill, SCBA Bottle Refill, Egress Bottle Refill, In-line Air Draeger Detection Tubes, Glove Liners Gloves, Butyl Gloves, Leather Palm, Work Gloves, Neoprene Gloves, Nitrile Gloves, PVC Gloves, Sampling (Standard)	Price / Unit
Boots, Pullover Boots, PVC, with steel toe Boot Covers, HAZMAT Bottle Refill, SCBA Bottle Refill, Egress Bottle Refill, In-line Air Draeger Detection Tubes, Glove Liners Gloves, Butyl Gloves, Leather Palm, Work Gloves, Neoprene Gloves, Nitrile Gloves, PVC Gloves, Sampling (Standard) Gloves, Silver Shield	Price / Unit
Boots, Pullover Boots, PVC, with steel toe Boot Covers, HAZMAT Bottle Refill, SCBA Bottle Refill, Egress Bottle Refill, In-line Air Draeger Detection Tubes, Glove Liners Gloves, Butyl Gloves, Leather Palm, Work Gloves, Neoprene Gloves, Nitrile Gloves, PVC Gloves, Sampling (Standard) Gloves, Silver Shield Gloves, Viton	Price / Unit
Boots, Pullover Boots, PVC, with steel toe Boot Covers, HAZMAT Bottle Refill, SCBA. Bottle Refill, In-line Air Draeger Detection Tubes, Glove Liners Gloves, Butyl Gloves, Leather Palm, Work Gloves, Neoprene Gloves, Nitrile Gloves, PVC Gloves, Sampling (Standard) Gloves, Silver Shield Gloves, Viton Gloves, Winter Work	Price / Unit
Boots, Pullover Boots, PVC, with steel toe Boot Covers, HAZMAT Bottle Refill, SCBA Bottle Refill, Egress Bottle Refill, In-line Air Draeger Detection Tubes, Glove Liners Gloves, Butyl Gloves, Leather Palm, Work Gloves, Neoprene Gloves, Nitrile Gloves, PVC Gloves, Sampling (Standard) Gloves, Silver Shield Gloves, Viton Gloves, Winter Work Hard Hat with Face Shield	Price / Unit
Boots, Pullover Boots, PVC, with steel toe Boot Covers, HAZMAT Bottle Refill, SCBA Bottle Refill, Egress Bottle Refill, In-line Air Draeger Detection Tubes, Glove Liners Gloves, Butyl Gloves, Leather Palm, Work Gloves, Neoprene Gloves, Nitrile Gloves, PVC Gloves, Sampling (Standard) Gloves, Silver Shield Gloves, Winter Work Hard Hat with Face Shield Respirator Cartridges (OV, AG, or HEPA)	Price / Unit
Boots, Pullover Boots, PVC, with steel toe Boot Covers, HAZMAT Bottle Refill, SCBA Bottle Refill, Egress Bottle Refill, In-line Air Draeger Detection Tubes, Glove Liners Gloves, Butyl Gloves, Leather Palm, Work Gloves, Neoprene Gloves, Nitrile Gloves, PVC Gloves, Sampling (Standard) Gloves, Silver Shield Gloves, Viton Gloves, Winter Work Hard Hat with Face Shield Respirator Cartridges (OV, AG, or HEPA) Respirator Cartridges (HEPA/Combination)	Price / Unit
Boots, PVC, with steel toe Boot Covers, HAZMAT Bottle Refill, SCBA Bottle Refill, Egress Bottle Refill, In-line Air Draeger Detection Tubes, Glove Liners Gloves, Butyl Gloves, Leather Palm, Work Gloves, Neoprene Gloves, Nitrile Gloves, PVC Gloves, Sampling (Standard). Gloves, Silver Shield Gloves, Viton Gloves, Winter Work Hard Hat with Face Shield Respirator Cartridges (OV, AG, or HEPA) Respirator Cartridges (HEPA/Combination) Safety Glasses/Goggles	Price / Unit
Boots, Pullover Boots, PVC, with steel toe Boot Covers, HAZMAT Bottle Refill, SCBA Bottle Refill, Egress Bottle Refill, In-line Air Draeger Detection Tubes, Glove Liners Gloves, Butyl Gloves, Leather Palm, Work Gloves, Neoprene Gloves, Nitrile Gloves, PVC Gloves, Sampling (Standard) Gloves, Silver Shield Gloves, Viton Gloves, Winter Work Hard Hat with Face Shield Respirator Cartridges (OV, AG, or HEPA) Respirator Cartridges (HEPA/Combination)	Price / Unit

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Suit, Barricade Coverall and Welded Seams	
Suit, Level A, Fully-Encapsulated	723.00 / each
Suit, Level B, Barricade, Fully-Encapsulated	184.00 / each
Suit, Polycoated Tyvek	
Suit, PVC Rain Suit (three-piece)	28 00 / each
Suit, Saranex	28.00 / each
Suit, White Tyvek	
Caic, virille Tyvek	12.00 / Cacii
D. Sorbent Materials	Price / Unit
Oil Only	
Boom, 410S, 4" x 10" (4/bale)	117 00 / bale
Boom, 810, 8" x 10" (4/bale)	214 00 / bale
Boom, 410, Double 4" x 10" (4/bale)	234 00 / bale
Drum Top Sorbent, 22" diameter (25/bale)	
Pads, Anti Static, 3/8" x 17" x 19" (100/bale)	
Pads, Anti Static, 3/8" x 38" x 34" (25/bale)	
Pads, Anti Static, 3/16" x 17" x 19" (50/bale)	
Pads, 3/8" x 38" x 34" (50/bale)	
Pads, 3/8" x 17" x 19" (50/bale)	87.00 / bale
Pads, 3/16" x 17" x 19" (200/bale)	
Pads, Smart, 100 Grade (100/bale)	
Pillows, Oil, 8" x 18" (10/bale)	
Pom-Poms, Heavy Oil (30/box)	
Roll, Anti Static, A144, 3/8" x 19" x 144'	
Roll, 3/16" x 38" x 288'	
Roll, 3/8" x 19" x 144' (2/bale)	145.00 / each
Roll, Smart Oil, 38" x 144'	
Roll, 38" x 144'	145.00 / each
Socks, Poly, Oil 3" x 46" (12/case)	
Sorbent, Loose, Polypropylene Particulate (25 lbs).	108.00 / bag
Sweep, 3/8" x 19" x 100'	
Universal	
Industrial Rug, Universal, 18" x 300' (2 rolls/bale)	
Industrial Rug, Universal, 36" x 300'	
Speedy Dry, Clay (50 lbs)	
Drizorb (40 lbs)	14.00 / bag
Slikwik, 1.7 ft <sup>3</sup>	11.00 / each
HAZMAT Pillow, 14" x 16" x 1 1/2" (14/bale)	146.00 / bale
Pads, Universal, 3/8" x 17" x 19" (100/bale)	
Socks, Clay, 3" x 38" (8/case)	
Socks, Lite, 3" x 46" (40/case)	
Socks, General, 2.6" x 42" (40/case)	
Spill Kit, Vacuum Pack (4/case)	
Spill Solidifiers (water and petroleum)	
Spill Solidifiers (acid and base)	•
opin denamere (adia ana bade)	27.00 / pourid
E. Decontamination Chemicals	Price / Unit

	10.00 /
Alconox (decontamination powder)	12.00 / pound
Capsur (PCB Solvent System)	
Citric Acid Powder (50 lb bag)	
Citrus Degreaser (Jansolve or equivalent)	25.00 / gallon
Distilled Water	
General Degreaser	
Hexane	
Lime(50.00 lb bag)	14.00 / bag
Penetone (PCB decontamination)	28.00 / gallon
Phosphate-free Decontamination Solution (Liquinox or equivalent)	50.00 / gallon
Soda Ash(50 lb bag)	28.00 / bag
Sodium Hypochlorite(bleach)	4.00 / gallon
Trisodium Phosphate (5 LB pail)	
. , ,	•
F. Miscellaneous	Price / Unit
Brooms, Industrial	34.00 / each
Concrete Mix (80 lbs)	
Dry Ice (60 lbs)	
Fuel Oil #2 (subject to change)	
Grass Seed, Commercial	
Hose, ADS Corrugated, 3 - 4"	
Hose, ADS Corrugated, 6"	
Hose, Clear, Flexible Polyethylene, 1"	
Hose, Black Polyethylene, 1"	0.50 / foot
Nitrogen Cylinder	
Paper, pH (100/vial) Pigs, Poly (line cleaning), 2 - 4"	
Pigs, Poly (line cleaning), 6"	
Pigs, Poly (line cleaning), 8"	50.00 / each
Pigs, Poly (line cleaning), 10 - 12"	
Pigs, Poly (line cleaning), 15"	
Pigs, Poly (line cleaning), 16"	106.00 / each
Pigs, Poly (line cleaning), 18"	. 139.00 / each
Pigs, Poly (line cleaning), 30"	
Plug & Dike (1.5 LB tub)	
Polyethylene Sheeting, 6 mil 20' x 100'	87.00 / roll
Propane Cylinder Refill (20 LB)	
Rope, 1/4" Nylon	
Rope, 1/8" Poly	
Sample Jars, Glass (over 1 liter)	
Sample Jars, Glass, (1 liter or less)	
Sample Jars, Plastic, (1 liter or less)	
Sample Vials, Glass, (125 ml or less)	3.00 / each
Sample Tubes, Glass	
Sampler, Glass Drum Thiefs	5.00 / each
Sand (50 lbs)	9.00 / bag
Saw, Cut Off, Replacement Blade (14" walk-behind)	28.00 / each
Saw, Cut Off, Replacement Blade (hand-held)	
Saw, Reciprocating, Replacement Blade	
Shovel, Construction	
Shovel, Spark-Proof	
Time and Material rates are subject to change without notice.	
rime and material rates are subject to change without holice.	

Spill Kit, Mercury	195.00 / each
Squeegees, Industrial	
Straw	9.00 / bale
Tape, Caution, 3" x 1000'	28.00 / roll
Tape, Duct	8.00 / roll
Tape, Surveyors Flagging, 1" x 100'	65.00 / roll
Tedlar Bags (standard)	
Test Kit, Dexsil Field Test (oil, soil, water)	39.00 / each
Tubing, 1" OD x .814" ID	16.00 / foot
Tubing, 5/8" OD x 1/2" ID	
Vermiculite (6 cu ft)	26.00 / bag

#### **GENERAL TERMS**

- 1. <u>Charges</u> for labor and equipment rentals will be invoiced on a portal to portal basis from start to completion of the job, for loading and unloading and mobilization and demobilization of equipment and materials. Minimum call out time is four hours per person and per item of equipment.
- 2. <u>Time and one-half charges</u> apply before 8:00 a.m. and after 4:30 p.m. weekdays and all day Saturday. <u>Double time</u> will apply to all hours worked on Sunday and Holidays. Holidays include: All National Holidays and New Year's Eve, The day after Thanksgiving, and Christmas Eve.
- 3. All rates for <u>operating equipment</u> do <u>not</u> include operators. Operating equipment is not rented without operators.
- 4. The <u>shift rate</u>, where applicable, is for an eight-hour shift. Each incremental hour beyond the first eight-hour shift is charged at the appropriate hourly rate. The <u>day rate</u>, where applicable, is for a 24-hour day.
- 5. <u>A minimum per diem allowance</u> of one hundred twenty five dollars (\$125.00), per employee, per day, will be assessed to cover lodging and meals where work of more than one day's duration is 50 miles or more from the operating branch office for scheduled work. When emergency work is performed, per diem is charged based on the employee's branch office location. The allowance is subject to change based on the area served.
- 6. All equipment and materials will be clean and in working order at the completion of each job. Cleaning, repair, or replacement charges will be charged for equipment and materials contaminated or damaged by site conditions. Equipment contaminated or damaged beyond repair will be charged at actual replacement cost plus twenty percent (20%) if not listed on the Time and Material Rates sheet.
  - Cleaning costs and disposal costs for wastes generated during truck and trailer cleaning will be charged for each vehicle as outlined in the *Time and Material Rates* sheet.
- 7. <u>Waste disposal</u> prices will be quoted after a representative sample is obtained and a *TSDF*Approval Request Form is complete. All costs for off specification, or other charges not known to Environmental Products & Services Of Vermont, Inc. at the time of the quotation, will be charged invoice cost plus a twenty percent (20%) processing fee.
- 8. <u>Manifest and Profile Preparation</u> require a fifteen dollar (\$15.00) fee for the first waste product. An additional fee of five dollars (\$5.00) will be incurred for each additional waste product up to four total waste products per manifest or Bill of Lading. In addition, profile fees from non-Environmental Products & Services of Vermont, Inc. owned disposal facilities are charged at invoice cost plus twenty percent (20%).
- 9. <u>UST Closure Reports</u> (for tank closures) and <u>Project Reports</u> are billed at Time and Material rates or quoted rates per job in addition to field costs.

- 10. <u>Other Materials/Equipment/Services</u> not specifically listed in the *Time and Material Rates* sheet and <u>subcontractors</u> will be charged at invoice cost plus twenty percent (20%).
- 11. <u>Equipment and Material not available</u> at the time required may result in a rental price that is higher than listed Time & Material Rates. Invoice cost plus twenty percent (20%) will be charged.
- 12. All product (supplies and material) prices are <u>F.O.B. origin</u>; applicable freight charges will be included in final customer invoice.
- 13. Payment Terms Net due 10 days with prior credit approval unless modified by purchase order or contract. Finance charges of one and one-half percent (1.5%) per month will be due on payments past due after thirty days from date of invoice. Payment by MasterCard/Visa, American Express, or Comcheck is available. The Company reserves the right to restrict the use of credit cards on selected products and services.
- 14. <u>Applicable Taxes</u>, including hazardous materials taxes, are an additional charge and are specifically excluded from the *Time and Material Rates* sheet.
- 15. <u>Delivery Charges</u> Delivery charges or shipping costs will be charged for delivery of supplies or materials.
- 16. A \$350.00 work permit fee per project will be assessed for all work performed on the <u>New York State Thruway.</u>
- 17. Returned Products Policy Returns are accepted only with prior approval and are subject to a processing fee of \$25.00 and a restocking charge of twenty percent (20%) of the invoice value of the returned products. Sales on special order items are final.
- 18. Time and Material rates are subject to change without notice.

#### **Dan Bowman**

From:

Abe Platt [AbePlatt@envisionenvironmental.com]

Sent:

Tuesday, December 09, 2008 8:20 AM

To: Cc: Dan Bowman Mark Roman

Subject:

Forest Park - Proposal

Attachments:

image001.png

Dan,

I have a couple of questions regarding your proposal and I am confirming our telephone conversation:

- 1. Is there a cost differential in your daily rate pricing for DOT clean vs. API clean and what is that differential?
- 2. I would like you to provided mob/demob, daily rental rates and end of use cleaning rates for equipment such as: portable tanks, Frac tanks, tankers, vacuum boxes, roll-offs, etc.
- 3. Please provide an estimated length of time to complete the project.
- 4. Please provide your Certificate of Liability Insurance.

#### I would also like to confirm the following:

- Scheduling January is open;
- Crew size 5 including supervisor;
- Days per week 5 to 6; and
- Hours per day 8 to 11.

Your proposal indicates a cost plus 20% rate for sub-contractor, if approved. Do you plan on using a sub-contractor? If so, please provide the information requested in the RFP for this project.

Thank you, Abe

Abraham Platt Senior Engineer

#### ENVISION ENVIRONMENTAL, INC.

11 Sleepy Hollow Court
Allentown, NJ 08501
(609) 208-1885
(609) 208-1889 fax
abeplatt@envisionenvironmental.com

#### CONFIDENTIALITY NOTICE

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# **CES Environmental Services, Inc.**

4904 Griggs Rd. Houston, TX 77021 Phone: (713) 676-1460 Fax: (713) 676-1676

Abeplattalenvision. environmental.com

### **Fax Transmittal**

Total Number of Pages (Including cover sheet):
Date: 17/04/08
To: Mark / Abe
609-208-1889
From: Dan Bowman CES Environmental Services, Inc. Mobile Phone: (713) 854-6150
Notes:
Call w/ Adjustmats, questions, or Price changes/requests.
J.
Insurance 10,000,000 & Confined space program to come (may have on file from Howston Project)

CES Environmental Services, Inc.

4904 Griggs Rd. Houston, TX 77021

Phone: (713) 676-1460 Fax: (713) 676-1676

# **Quotation**

December 2, 2008

**Envision Environmental** 

Attn: Jim Gonsewski/ Mark Roman

Phone: 609-208-1885 Fax: 609-208-1889

#### **Description of Work to be Performed:**

A. Start-up Costs-Materials/Purchases/Preparations

Estimate for materials, labor, equipment, transportation and disposal/recycle for the removal of wastes and recyclables at the Rexam Beverage Can Company.

#### **Mobilization/Demobilization**

- -1<sup>st</sup>initial trip includes some initial equipment purchases (Hoses, Etc.)
- -All Mobilization/Demobilization charges include transit/per diems to and from our Houston location to Atlanta Rexam site, and return from the Atlanta to Houston with base equipment and manpower listed below
- -All trips from Houston will include costs associated with travel to the site based on delays beyond the control of CES up to and including acts of God.
- -Non-work days on site can include Saturdays and Sundays if requested. Non-work after 2 consecutive days off beyond CES's control may be negotiated if necessary between CES and Envision at agreed upon rates based on request.

	*	
A.	Initial Travel and associated costs to Atlanta	\$ 7,000.00
A.	Travel Back and associated costs to Houston	\$ 7,000.00
<u>A.</u>	1st Initial Trip- Start up Costs, Mobilize, Demobilize-Subtotal	\$31,600.00
B.	Additional trips from Houston-Mobilize	\$ 7,000.00
B.	Additional trips from Houston-Demobilize	\$ 7,000.00
<b>B</b> .	Additional Trips- Mobilize/Demobilization/Per Diem-Subtotal	\$14,000.00

#### C. Non-work day rates

-Sat/ Sunday, or just Sun (or up to 2 days/week-for per diems)	<u>\$150/man</u>
-Other non-working day due to delays beyond CES's Control	Negotiable

#### **Estimated Daily Charges for Base Labor and Equipment:**

- -Labor for the base estimate includes a crew of 5 consisting of 1-project supervisor/operator, 4 field service technicians/operators, associated per diem, and standard/confined space PPE/safety equipment for a maximum of 11 hours/day. A larger crew can be requested for additional rates at the customer's request. No overtime rates will be charged Mon-Sat for up to 11 hours/day.
- -Equipment included in this base daily estimate includes the following: 1 air machine (100 foot flex hose free), 1 field service truck and trailer, 18 wheel box truck and trailer,

\$17,600.00

2-diaphragm pumps, 2-heated pressure washers, 2-standard pressure washers, all hose for diaphragm pumps/pressure washers, fuel and fuel surcharges.

-Assumes work week with not less than 40 hrs/wk and not to exceed 66 hours/wk unless approved by both CES and the customer.

<u>Breakdown-Subtotal Below (Estimated up to 11 hours per wo</u>
--

Air Machine w/Operator-Includes Fuel Surcharges (1)	\$1,750/day
Box Van w/Haz Mat Driver-Doubles also as helper-Includes FSC (1)	\$ 925/day
FS Truck & Trailer-Includes FSC	\$ 250/day
Field Service Driver/Operator/Tech (1)	\$ 330/day
Field Service Technicians (2)	\$ 330/man/day
Large-5000 PSI Heated Pressure Washer-Diesel Operated w/fuel (2)	\$ 250/unit/day
Gas Operated Pressure Washers-2500 PSI w/fuel (2)	\$ 75/unit/day
PPE @ \$30/day/man	\$150/day/crew
Diaphragm Pumps-2 inch air operated (2)	\$75/unit/day

#### Estimated Daily Rate for Items Listed Above (CES Workers)

\$6,040.00/day

#### **Materials Costs for Items**

-Price only includes those items used. Box Van will be full of supplies, but may not have unlimited supplies.

-Materials used over those brought to site, items not listed, or unexpected materials, will be at a rate of cost plus 20%. Receipts will be included as part of back-up information for materials that fall under this category.

Reconditioned Open Top Drums (55 gal-Steel)	\$35/dm
Reconditioned Poly Open Top Drums (55 Gallon)	\$55/dm
Reconditioned Poly Totes (250 gallon)	\$95/tote
Flex Hose (Over 100 foot/day)	\$1.25/foot
Clay Absorbents	\$12/bag
Pad Absorbent	\$60/bag (100)
Other Misc. Items Purchased by CES	
-Includes pipe fittings, plastic, etc. as need arises	Cost + 20%

#### Rentals/Disposal/Recycling/Transportation and Associated Costs

-It is logical that all costs for disposal/recycling activities, equipment rental, transportation, and costs associated with these line items may fluctuate over the life of the project.

-CES agrees to used vendors approved by client.

Rentals/Disposal/Recycling/Transportation and Associated Costs Cost + 20%

#### **Subcontracted Work**

-Any work performed by pre-approved subcontractors will be pre-approved by the client.

Any Approved subcontracted work Cost + 20%

<sup>\*</sup>These are work day rates only. Non-work day rates are listed above.

<sup>\*</sup>These rates do not include travel days listed in mobilization/demobilization rates.

<sup>\*</sup>Partial work days may be negotiated at an agreed upon rate.

<sup>\*</sup>Any subcontracted work preapproved by customer for services not listed will be At cost + 20% if hired by CES and approved by customer.

#### **Terms and Conditions**

- \*\*CES will work around on-site production equipment and make efforts to protect Rexam equipment yet does not assume any liability for damage to equipment from cleaning site. CES requested that the equipment be removed, but decided that it was not practical to do so.
- \*\*CES expects to be able to work in a safe environment to OSHA standards. Any work requested that cannot be performed under OSHA standards will be refused and will be made aware in advance for this type of activity (If Necessary).
- \*\*If work terminates for good reason, CES client agrees to pay all outstanding invoices.
- \*\*Payment terms are net 30 days, unless negotiated prior to beginning of the project.
- \*\*\*Thank you for your interest in CES Environmental Services, Inc.

Acceptance Signature_	<del>_</del>	 	 
Date			

# Driving directions to 48 Royal Dr, Forest Park, GA 30297 790 mi – about 11 hours 56 mins

4904 Griggs Rd Houston, TX 77021		<b>®</b>
<ol> <li>Head east on Griggs Rd toward Grace Ln</li> </ol>	<b>(</b>	1.0 mi
2. Continue on <b>Long Dr</b>	<b>®</b>	0.4 mi
3. Slight <b>left</b> at <b>S Loop E</b>	<b>®</b>	0.3 mi
4. Take the ramp on the <b>left</b> onto <b>l-610 E</b>	<b>©</b>	7.4 mi
<ol> <li>Take exit 26A to merge onto I-10 E         Entering Louisiana     </li> </ol>	<b>®</b>	265 mi
6. Slight <b>right</b> at <b>I-12 E</b> (signs for <b>Hammond/I-12 E</b> )	<b>®</b>	86.4 mi
<ol> <li>Continue on I-10 E         Passing through Mississippi         Entering Alabama     </li> </ol>	<b>®</b>	102 mi
<ol><li>Take exit 20 on the left to merge onto I-65 N toward Montgomery</li></ol>	<b>®</b>	171 mi
<ol> <li>Take exit 171 to merge onto I-85 N toward Atlanta Entering Georgia</li> </ol>		149 mi
10. Take exit <b>69B</b> for <b>State Hwy 279/Old National Hwy</b>		0.8 mi
11. Keep <b>left</b> at the fork, follow signs for <b>Macon/I-285 E</b> and m onto <b>I-285 E</b>	erge®	3.6 mi
12. Take exit <b>58</b> toward <b>Macon/Atlanta/I-75</b>	<b>®</b>	0.8 mi
<ol> <li>Keep left at the fork to continue toward GA-3/Old Dixie Rd US-19/US-41</li> </ol>	<b>/</b>	0.4 mi
14. Keep <b>right</b> at the fork to continue toward <b>GA-3/Old Dixie F US-19/US-41</b>	Rd/ 🕮	0.8 mi
15. Keep <b>right</b> at the fork, follow signs for <b>US-41/US-19/Fores Park</b>	t ®	0.2 mi
16. Turn left at GA-3/Old Dixie Rd/US-19/US-41		0.6 mi
17. Turn <b>right</b> at <b>Old Dixie Rd</b>	<b>®</b>	0.5 mi
18. Turn left at Royal Dr	<b>®</b>	0.2 mi
Destination will be on the left		
48 Royal Dr Forest Park, GA 30297		<b>®</b>

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

# **Custom Estimate Developed Especially for:**

Dan Bowman Ces Enviromental

Phone: 713-854-6150

### Prepared on 12/2/2008 by:



Brian Brandstetter 313 Marble Mill Road Marietta, GA 30060 Phone: 678-594-6601 Fax: 678-594-6605

www.rainforrent.com

















RAIN FOR RENT SELLS PUMPS -- Those hard working & reliable Power Prime Pumps that you are renting can also be purchased. New & Used we have both in stock for immediate delivery. Call 800-742-7246 for information -- RAIN FOR RENT KEEPS YOU PUMPING.

#### Rental/Sales Estimate



#### www.rainforrent.com

313 Marble Mill Road Marietta, GA 30060 Phone: 678-594-6601 Fax: 678-594-6605

Estimate Number: 10-027-248694 Prepared By: Brian Brandstetter

Job Description: Water Storage

Customer: Ces Enviromental

Location:

Customer ID: R93494

Address:

Forrest Park, GA

City/State: ,

Contact: Dan Bowman Office: 713-854-6150

Fax:

\*Rain for Rent Cycle = 28 Days.

#### Rental Items

Qty	Unit	Duration	Item	Description	Day	Week	*Cycle	Extension
1	Each	1 Day	+560205	21,000 gallon Tank	\$42.00	\$0.00	\$0.00	\$42.00
1	Each	1 Day	+620510	BOX-VACUUM 25YD	\$40.00	\$0.00	\$0.00	\$40.00
2	Each	1 Day	+610520	BOX-ROLL OFF 20 YD	\$14.00	\$0.00	\$0.00	\$28.00

Rental Sub Total: \$110.00

#### Sales Items

Qty		item	Description	Unit Price	Extension
2	Each	MS	Roll Off Liners	\$45.00	\$90.00

Sales Sub Total: \$90.00

Sub Total: \$200.00

*The Terms and Conditions of the Rain For Rent Rental and Acute Hazardous Waste Agreements, Credit Application, Invoice and this estimate contain the	Est. Delivery Hauling	\$650.00
complete and final agreement between Rain For Rent and Customer and no other agreement in any way modifying or adding to any of said Terms and Conditions will	Est. Pick-up Hauling	\$650.00
be binding upon Rain For Rent unless made In writing and signed by a Rain For Rent Corporate Officer.  *Payment terms are net 30 days from invoice date. A 1.5%month late charge will be	Est. Install Labor	\$0.00
made on any past due invoices. *Estimate is valid for 30 days and is subject to credit approval.	Est. Removal Labor	\$0.00
*Availability subject to change without notice. *Estimates are based on Customer supplied information and are subject to change based on actual requirements and usage.	Est. Fuel Surcharge	\$143.00

( Does Not Include Sales Tax )

**Estimate Total:** 

\$1,643.00

Date Prepared: 12/2/2008

Valid Until: 1/01/2009

Customer

Date

By signing this estimate, customer represents that customer has read and agreed to all terms of this estimate, including those on Terms & Conditions page and those on the Additional Specifications page (if applicable).

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Page 2 of 4

Estimate 10-027-248694 Confidentiality Notice: This quotation and any associated docume circulated, duplicated, quoted or otherwise referred to or disclosed to third parties for any received this information in error, please immediately contact us at riake@rainforrent.com nt(s) are privileged and condifidential, and are intended for the sole use of the addressee(s). They cannot be used, ason without the written consent of an Officer of Western Oilfields Supply Company dba/Rain for Rent. If you have r by telephone at 661-387-6173. Thank you.

#### Rental/Sales Estimate



www.rainforrent.com

313 Marble Mill Road Marietta, GA 30060 Phone: 678-594-6601 Fax: 678-594-6605

Estimate Number: 10-027-248694

#### **Terms & Conditions**

#### **Additional Terms**

- 1. A cycle is defined as 4 weeks. A week is defined as one third of a cycle and a day is one third of a week. Customers will be invoiced at the appropriate cycle, weekly or daily rate based on actual equipment usage except for pipe, hose and fittings which will be billed at the cycle rates only and will not be prorated.
- 2. The rental rate for pumps and equipment with hour meters are based on an 8 hour day or 48 hour running week. The rental rate will be multiplied by 1.5 for greater than 8 hours per day or 49-96 operating hours per week and multiplied by 2.0 for more than 16 hours per day or 96 operating hours per week. Customer will be invoiced for 24 hours per day if the hour meter has stopped functioning.
- 3. Overtime will be invoiced at 1.5 times the regular rate for work occurring outside of normally scheduled business hours and 2.0 times the regular rate for work occurring on company recognized holidays.
- 4. Customer shall pay for any changes to work scope including but not limited to schedule changes, material, labor, third party, permit, fee or service costs. It is the Customer's responsibility to cooperate in the timely processing, approval and payment of any charges within Rain For Rent's invoice terms.
- 5. Customer is responsible to determine the suitability of equipment for the application.
- 6. Delivery, Return, Installation and Removal costs are estimated. Customer will be invoiced for actual time. Transportation will be invoiced on a Portal to Portal basis.
- 7. Customer is responsible for flushing and cleaning tanks, roll off boxes, pipelines, pumps, filters and other Rain for Rent equipment prior to return.
- 8. Customer is responsible for equipment, repairs, maintenance and damage, excluding normal wear and tear. All returned equipment is subject to inspection by Rain for Rent personnel. Damages and accrued rent will be invoiced to Customer while equipment is out of service for repairs.
- 9. The Customer cannot alter the equipment without Rain For Rent's prior written approval.
- 10. Customer will provide "all risk" property insurance for rented equipment.
- 11. Customer will not allow any equipment to come in contact with any substance that will cause corrosion, damage or leakage.
- 12. The Customer assumes all risks of loss due to operation and use of the equipment.
- 13. Customer is responsible to obtain any permits, licenses, certificates, bonds and give all notices required by law.
- 14. The rental period begins the day the equipment is delivered and continues until returned to Rain For Rent's facility unless written confirmation of the release is provided to the Customer before that time.
- 15. Rental equipment must be returned to the renting Rain for Rent branch unless agreed to in writing before the rental period begins.
- 16. All material that comes in contact with Rain For Rent equipment including media is the responsibility of Customer as generator. Rain For Rent shall not be responsible for any fines or sanctions as a result of Customer's use of the equipment.
- 17. The equipment is sold "AS IS,WHERE IS" in its present condition. Seller makes no warranties, expressed or implied of any kind whatsoever with respect to the equipment. Buyer agrees that buyer has purchased the equipment based on his judgement and evaluation, without reliance upon any statements of representations of seller, and that seller is not responsible for any defects in its operation or for any repairs, parts or services, unless otherwise noted.
- 18. De-watering, Roll-off, Vacuum boxes and similar equipment are not liquid tight. Rentee accepts full responsibility for all losses, damages and costs caused by or arising out of spills, leakage or discharge from this equipment.
- 19. Customer will use the equipment in a careful and proper manner and in accordance with safety rules, industry standards, manufacturer's specifications, recommendations, regulations and applicable laws
- 20. Customer shall be responsible for environmental fees covering waste fluid, fuel, filter and other disposal costs.
- 21. A Fuel Surcharge will be invoiced based on the diesel fuel price as published by the Department of Energy on http://tonto.eia.doe.gov/oog/info/wohdp/diesel.asp
- 22. Customer shall pay Rain For Rent additional expenses caused by site, soil or underground conditions, including, but not limited to, rock formations, environmental conditions, regulations or restrictions, hard pan, boulders, cesspools, gas lines, water lines, drain pipes, underground electrical conduits or other above ground or underground obstructions.
- 23. Customer shall be responsible for acquiring and paying for, if necessary, all public and private property easements required by the project.
- 24. The estimated labor component of this quote is based on non-prevailing wage rates. If prevailing wage laws are applicable, Customer must notify Rain For Rent in writing before Rain For Rent estimate completed. If Rain For Rent was not properly notified, Customer shall promptly pay any change orders that adjust wages to prevailing wage rates. Customer is responsible for providing applicable prevailing wage rates to Rain for Rent. Rain For Rent will provide certified payrolls on a bi-weekly basis if notified in writing 10 days before the start of the project.
- 25. Customer is prohibited from deducting retention from Rain For Rent invoices and charging Rain for Rent liquidated damages.
- 26. Customer is responsible for all routine maintenance including fuel, fluids, lubrication and filters every 150 hours on engine driven equipment. Rain For Rent will charge Customer for servicing any equipment that is on rent or returned that has not been serviced in 150 hours. Rain For Rent can provide field service upon request for an additional service charge. Rain For Rent must be notified 2 business days in advance to schedule required field service.
- 27. This estimate excludes any additional costs to Rain For Rent associated with Owner Controlled Insurance (OCIP) or WRAP insurance programs that will be added to Rain For Rent's prices.
- 28. Customer is responsible to provide freeze protection for all equipment on site.
- 29. Customer will be responsible for security, traffic control and road crossings. Traffic control shall meet all applicable Federal, State, and Municipal laws and regulations to assure a safe work environment.

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Page 3 of 4

Estimate 10-027-248694 Confidentiality Notice: This quotation and any associated document(s) are privileged and condifidential, and are intended for the sole use of the addressee(s). They cannot be used, circulated, duplicated, quoted or otherwise referred to or disclosed to third parties for any reason without the written consent of an Officer of Western Olifields Supply Company dba/Rain for Rent. It you have received this information in error, please immediately contact us at rake-dgarinforrent.com or by telephone at 661-387-6173. Thank you.

- 30. Cold Weather Packages for tanks consist of up to 4 tank heaters and a submersible pump which is designed for use in a non-combustible or corrosive environment.
- 31. Tank heaters are operated on 120 volts, 12.5 amps each or 50 amps total. The submersible pump operates at 120 volts, 10 amps.
- 32. Customer is responsible for electrical connections and compliance with applicable permits, regulations and code requirements.
- 33. Tank Cold Weather Packages are not to be used in combustible or corrosive environments.
- 34. Tank Cold Weather Packages are a preventative measure that may keep fluids inside the tank from freezing. RFR will not guarantee fluids from freezing and any resulting damages.

#### **Job Specific Terms**

- 35. Customer is responsible to supply as needed any type of equipment that will be required to complete installation, including but not limited to: forklift, crane truck, backhoe, vacuum truck, light towers.
- 36. Customer is responsible to supply contact names, phone numbers and emergency contact number for job superintendent.
- 37. All equipment must be deconned inside and outside prior to return. Equipment remains on rent until clean and all applicable repairs complete.
- 38. Customer shall hold harmless, indemnify and defend Rain For Rent from any claims whatsoever, arising from or related to (A) any pollution, contamination, environmental impairment and/or similar condition directly or indirectly caused by or resulting in whole or in part from Customer's use of any Equipment or (B) any environmental statutory or regulatory compliance requirements applicable to any equipment (or any use thereof) and required under any and all foreign or domestic federal, state or local laws,ordinances, regulations, codes, or requirements of any governmental authorities which regulate or impose standards of liability or conduct concerning air, water, soils, wetlands and watercourses, solid waste, hazardous waste and/or materials, worker and community right-to-know, noise, resource protection, health protection and similar environmental, health, safety, and land use concerns as may now or at any time hereafter be in effect. This indemnification shall survive the termination of the agreement.

# **ENVISION ENVIRONMENTAL, INC.**

November 18, 2008

Mr. Dan Bowman CES Environmental Services, Inc. 4904 Griggs Road Houston, TX 77021

RE: Request for Proposal

**REXAM Beverage Can Company** 

48 Royal Drive

Forest Park, GA 30297

ENVISION Project ID: 1208.REX

Dear Mr. Bowman:

On behalf of our client, REXAM Beverage Can Company (RBCC), ENVISION ENVIRONMENTAL, INC. (ENVISION) would like to thank you for attending the pre-bid facility walk-through on either October 24 or October 27, 2008 held at the referenced facility. As you are aware, the walk-through was to familiarize yourself with the physical condition and locations of the tanks, trenches, sumps, process equipment, etc. that need to be addressed in your proposal. Based on the walk-through site visit and the enclosed attachments, please provide a proposal to address cleaning the tanks, equipment and areas included in the attached Scope-of-Work (SOW). The attachments include the SOW (Attachment 1); a list of tanks/ equipment/sumps (Attachment 2); photographs of the interior of a majority of the sumps/pits (Attachment 3); a drawing of the Manufacturing Building showing the last locations of process equipment, tanks, trenches, sumps, etc. (Attachment 4); Material Safety Data Sheets (MSDS) for the last known contents of the tanks and process equipment (Attachment 5); and contractor health and safety requirements (Attachment 6).

Waste disposal will be handled under a separate request for proposal.

RBCC may want to discharge some of the wash/rinse water to the local sanitary sewer authority, provided the wash/rinse water can meet the discharge standards to the POTW. As a result, hazardous waste should be drummed for transportation for offsite treatment/disposal, wash water should be directed to a FRAC tank for possible discharge to the local sanitary sewer authority, and oily water should be directed to a temporarily staged tank or tanker for transportation for offsite treatment/disposal. The successful contractor will supply all of the containers to be used, i.e. drums, FRAC tank, tanker, etc. Contractors are to be completely self-sufficient. Plant equipment, such as fork lift trucks may not be available during cleaning operations and are not to be used if present.

ENVISION and RBCC personnel will be onsite during all cleaning operations to answer any questions that may arise.

11 Sleepy Hollow Court, Allentown, NJ 08501 • Phone: 609-208-1885 Fax: 609-208-1889 www.envisionenvironmental.com



Request for Proposal REXAM Beverage Can Company Forest Park, GA November 18, 2008 Page 2 of 2

# **ENVISION ENVIRONMENTAL, INC.**

Please provide the names of all sub-contractors, if any, which will be used on this project with your quotation. Contractors and any subcontractors to be used must provide all OSHA training documentation with your proposal. Please provide a certificate of insurance for your company along with your quotation. If a sub-contractor is to be used, please also provide a copy of their certificate of insurance. Please note that confined space entry procedures will be strictly adhered to. A copy of the contractor's/subcontractor's confined space entry/permit required confined space entry procedures are to accompany the proposal. Please see SOW document for additional requirements.

Please provide your proposal one (1) week from receipt of this Request for Proposal. The work is anticipated to commence in early December 2008.

Any questions pertaining to the SOW are to be directed to the undersigned from ENVISION.

Very truly yours,

Abraham Platt Senior Engineer Reviewed by:

Mark Roman President

## **ATTACHMENT 1**

Scope-of-Work



#### SCOPE-OF-WORK

#### REXAM BEVERAGE CAN COMPANY (RBCC)

The following is a Scope-of-Work for the RBCC facility located at 48 Royal Drive in Forest Park, GA:

#### BUILDING AND EQUIPMENT DECONTAMINATION/DECOMMISSIONING

Access and clean the eight (8) aboveground storage tanks within the Bulk Storage Room on the south side of the Manufacturing Building. The Pump Room (Pump House) for these tanks is located on the west side of the Manufacturing Building and includes the seven (7) transfer pumps for the seven (7) larger tanks in the Bulk Storage Room. See attached drawing for tank locations and attached tank list for tank capacities and last known contents.

Disconnect, clean and blank off all vents from these tanks.

Remove and clean any mixers and transfer pumps.

 Access and clean the five (5) aboveground storage tanks within the Red Label Storage Room on the south side of the Manufacturing Building. See attached drawing for tank locations and attached tank list for tank capacities and last known contents.

Disconnect, clean and blank off all vents and/or flame arrestors from these tanks.

Remove and clean any mixers and transfer pumps.

Access all trenches, sumps and pits within the Manufacturing Building including the former can manufacturing area (cupper and bodymaker areas), the baler room, the boiler room, the compressor room, the former Sneider filter area, the De-Ionizer (DI) area, the compressor/de-mister area on the former railroad dock at the southwest corner of the Manufacturing Building, and the wastewater treatment plant at the northwest corner of the Manufacturing Building. Remove all liquids found in the trenches, sumps and pits and containerize for disposal. Clean all trenches, sumps and pits within the Manufacturing Building and containerize wash-water in Frac Tanks. Clean the walls in the Baler Room to approximately 10-feet above the floor. Clean the floor area under the Baler. Clean the exterior of the Surge tank located at the northwest corner of the western cross trench (Cupper Trench).

The exception for sumps is the stormwater sump in the Compressor Room accessed by the large manhole cover between the compressors in the Compressor Room. This manhole cover is to be covered during cleaning operations conducted in the Compressor Room to prevent any discharge to the stormwater sewer.

- Drain and clean the drip pans under the compressor/de-mister area on the former railroad dock at the southwest corner of the Manufacturing Building.
- Drain and clean the drip pans under the two (2) Can Washers on the mezzanine and the associated trenches adjacent to the drip pans (on the wash tank side of each Can Washer).



- Plug the floor drains in the Bulk Storage Room, Red Label Storage Room, and Chemicals Room which are connected to a sump in the Welding Shop within the Machine Shop in the southeast corner of the Manufacturing Building while addressing these areas. Clean the sump in the Welding Shop. Clean the spill containment pallets in the Chemicals Room. Clean the spill containment pallet and the surrounding floor area in the Red Label Storage Room.
- Access, clean and inspect the former wastewater treatment system weir and associated tanks located on the exterior northwest corner of the Manufacturing Building.
- Access and clean the former Sneider Filter Area. This includes the Cuno Filter housings (2), the filter housings (2) in the southwest corner of the area, the Cup Lube Premix Tank (~500-gallons), the inner tank (dirty tank, ~6,000-gallons) and the outer trench/tank (clean tank, ~3,500-gallons).
- Clean out the containment sumps/basins under the four (4) remote fill/discharge ports on the exterior of the Manufacturing Building.
- Access and clean the Lime Silo on the exterior of the former Manufacturing Building.
- Clean out all process tanks that are not going to be used (i.e. wastewater treatment system, DI area, Sneider Filter area, compressor areas, boiler room, main manufacturing floor, etc.).
- Access and clean the two (2) aboveground storage tanks within the Red Label Room on the south side of the Warehouse Building.
  - Disconnect, clean and blank off all vents and/or flame arrestors from these tanks.
  - Remove and clean any mixers and transfer pumps.
- Access and clean the spill sump on the exterior of the former Red Label Room on the south side of the Warehouse Building. Access the concrete manway cover and confirm the presence of an underground spill containment tank. If present, access and clean the interior of the tank.
- Access, clean and inspect the sump in the loading dock bay adjacent to the Red Label Room
- Access, clean and inspect the sump in the Switch Gear area within the Warehouse Building.

#### **Cleaning Notes**

- Pump out and containerize for disposal any liquids found in the tanks, process equipment, trenches, sumps, pits, etc. prior to cleaning. Label containers appropriately.
- Remove any residual product found on the exterior of the tanks and process equipment.
- Plug any drains found in trenches, sumps, pits, etc., if the discharge point is unknown.
- Identify and clean all piping and pumps to and from the fifteen (15) ASTs, process tanks, process equipment, and all sumps, pits, trenches and subsurface tanks/weirs. All piping



should be flushed back into the tanks, pits, etc. Attach semi-permanent and highly visible identification labels to cleaned piping and pumps to identify that the piping and pumps were cleaned. Blank off or cap the ends of all cleaned piping and pumps. Break and cap all piping for the Bodymakers in the adjacent trenches (Bodymaker Trenches) at the point of connection to the main piping within the trenches. This piping typically includes five (5) systems: compressed air, vacuum, coolant and lubricants. The Bodymakers have a central lubrication system which includes pumps that also have to be cleaned.

- All tanks to be cleaned to DOT or API standards. (Please provide cost for each standard.)
  Attach semi-permanent and highly visible identification label to cleaned tanks.
- All cans found in trenches, sumps, pits, pans, tanks, etc., are to be segregated and placed into the red plastic roller bins for off-site disposal.
- Clean out former fuel oil piping (bridge from former Warehouse to Manufacturing Buildings). Attach permanent and highly visible identification labels to cleaned piping to identify that the piping was cleaned. Blank off or cap the ends of all cleaned piping. Confirm integrity of this line before cleaning out the sections of the line that run underground.

#### **NOTES:**

- 1. CONTRACTORS ARE TO BE COMPLETELY SELF-SUFFICIENT. PLANT EQUIPMENT, SUCH AS FORK LIFT TRUCKS MAY NOT BE AVAILABLE DURING CLEANING OPERATIONS AND ARE NOT TO BE USED IF PRESENT.
- 2. CONTRACTORS ARE TO BE RESPONSIBLE FOR LOCK-OUT/TAG-OUT (LOTO) PROCEDURES TO DE-ENERGIZE ANY AND ALL POTENTIAL HAZARDS. PLANT PERSONNEL WILL BE ON-SITE TO ASSIST IN DETERMINING APPROPRIATE LOCATIONS FOR LOTO. HOWEVER, THE CONTRACTOR HAS ULTIMATE RESPONSIBILITY TO CONFIRM THAT THE PUMP, MIXER, ETC. IS DE-ENERGIZED.
- 3. SEGREGATE AND DRUM THE WASTES FROM THE ASTS IF THE WASTE IS TO BE CONSIDERED A HAZARDOUS WASTE.
- 4. NOTE THAT CONFINED SPACE ENTRY PROCEDURES WILL BE STRICTLY ADHERED TO. A COPY OF THE CONTRACTOR'S/SUBCONTRACOR'S CONFINED SPACE ENTRY/PERMIT REQUIRED CONFINED SPACE ENTRY PROCEDURES ARE TO ACCOMPANY PROPOSAL.
- 5. PLEASE PROVIDE A CERTIFICATE OF INSURANCE FOR YOUR COMPANY ALONG WITH YOUR QUOTATION. IF A SUB-CONTRACTOR IS TO BE USED, PLEASE ALSO PROVIDE A COPY OF THEIR CERTIFICATE OF INSURANCE
- 6. PLEASE PROVIDE THE NAMES OF ALL SUB-CONTRACTORS, IF ANY, WHICH WILL BE USED ON THIS PROJECT WITH YOUR QUOTATION.



- 7. PLEASE SUBMIT ALL OSHA TRAINING DOCUMENTATION FOR ALL WORKERS TO BE USED ON THE PROJECT.
- 8. PLEASE PROVIDE YOUR PROPOSAL ONE (1) WEEK FROM RECEIPT OF THIS REQUEST FOR PROPOSAL.
- 9. ALL HAZARDOUS WASTE DISPOSAL AND OILY WATER DISPOSAL TO BE AWARDED VIA A SEPARATE REQUEST FOR PROPOSAL.
  - RBCC MAY WANT TO DISCHARGE SOME OF THE WASH/RINSE WATER TO THE LOCAL SEWER AUTHORITY, PROVIDED WE MEET THE DISCHARGE STANDARDS. AS A RESULT, <u>HAZARDOUS WASTE SHOULD BE DRUMMED</u>, <u>WASH WATER TO A FRAC TANK</u> FOR POSSIBLE DISCHARGE TO SEWER AUTHORITY, <u>OILY WATER TO A TANK OR TANKER</u> FOR TRANSPORT. THE CONTRACTOR WILL SUPPLY ALL OF THE CONTAINERS TO BE USED, I.E. DRUMS, FRAC TANK, TANKER, ETC.
- 10. PLEASE PROVIDE ANTICIPATED SCHEDULE FOR COMPLETION OF TASKS.
- 11. PLEASE NOTE: ACCESS TO THE SITE FOR COMPLETION OF THESE TASKS IS AS FOLLOWS: MONDAY TO FRIDAY, 7:00 AM TO 4:00 PM. PLEASE ADVISE IF A 12-HOUR DAY IS PREFERABLE.

## **ATTACHMENT 2**

List of Tanks/Equipment/Sumps



### REXAM BEVERAGE CAN COMPANY (RBCC)

The following is a summary of the tanks, process equipment and sumps to be addressed in the cleaning Scope-of-Work for the RBCC facility located at 48 Royal Drive in Forest Park, GA:

#### TANK LIST

Tank Identification	Tank Capacity (gallons)	Former Contents		
BULK STORAGE RO	MC			
1 (steel)	7,500	DTI C1 Cupper (lube oil)		
2 (steel)	7,500	Bulk Over Varnish (PPG 3803801)		
3 (steel)	7,500	Inside Spray (water soluble coating with alcohol) (Valspar 20Q53AP, typical compound)		
4 (steel)	7,500	Inside Spray (water soluble coating with alcohol) (Valspar 20Q53AP, typical compound)		
5 (steel)	7,500	Pit Wash (Bodymaker – Sneider Filter)		
6 (FRP)	9,500 - 10,000	Ridoline 649 (Sulfuric Acid Solution)		
7 (FRP)	9,500 - 10,000	Soluble Oil (DTE 340B Coolant)		
8 (steel)	1,500	Not in Use		
RED LABEL STORAGE ROOM				
A (steel)	1,000	Not in Use		
B (steel)	1,000	Not in Use		
C (steel)	1,000	Isopropyl Alcohol (IPA)		
D (Waste Tank No. 9) (steel)	2,000	Spill tank		
E (steel)	2,000	Mobil Gear 630 (Spartan EP 220)		
RED LABEL ROOM -				
1 (steel)	7,500	Not in Use (Spill Sump Tank)		
2 (steel)	7,500	Not in Use		
DI AREA	<u> </u>			
Rectangular Settling Tank (metal)	1,000	Oily sludge/wastewater from Bodymaker trenches		
Caustic Mix Tank (plastic)	500	Sodium Hydroxide solution		
Acid Tank (circular plastic)	Less than 500	Ridoline 649 (Sulfuric Acid solution)		
Acid Tank	Less than 500	Ridoline 120 (Hydrofluoric Acid solution)		
(rectangular plastic)	<u> </u>			
SNEIDER FILTER AR	,	DTI C4 Cumper (lube pil)		
Cupper Mix Tank	~500	DTI C1 Cupper (lube oil)		
Sneider (inner tank)	~6,000	Deoxylyte 115, Bleach, DTI Defoamer, DTI		
Sneider (outer tank)	~3,500	Cleaner,		



Tank Identification	Tank Capacity (gallons)	Former Contents			
WASTEWATER TREA	WASTEWATER TREATMENT PLANT				
10 - Used Oil Separation Tank (steel)	5,000	Oily water (this is an API Oil/Water Separator)			
11 - Used Oil Storage Tank (steel)	7,500	Tramp Oil			
12 - Process Diversion Tank (FRP)	10,000	Oily Process Wastewater			
13 - Sludge Holding Tank (steel)	7,500	Sludge from Process Wastewater Treatment (this tank includes a circulation pump)			
Equalization Tank (concrete)	10,000	Oily Process Wastewater (this tank includes mixers)			
Neutralization Tank (concrete)	3,500	pH Adjustment Tank for Oily Process Wastewater from Equalization Tank (this tank includes mixers)			
Lift Tank (concrete)	6,500	Oily Process Wastewater from pH Adjustment Tank (this tank includes pumps)			
Lamella Settling Tank/Filter*		Oily Process Wastewater from the Lift Tank and Sludge Holding Tank, processed for flock separation and clean water			
Lime Silo	6,000 (pounds)	Powdered Lime			
BOILER ROOM					
Plastic Tanks (4) and Trenches	100 (each)	Water Treatment Chemicals (Chemtreat P-899L, P-895L, P-841L, P-817E and FO-120)			

OTHER EQUIPMENT	Chemical(s)	
Can Washer (Pans and Trenches)	Deoxylyte 115, Bleach, ME-50, Nitric Acid, Hydrochloric Acid, Sulfuric Acid	
DI Area Trenches	Deoxylyte 115, Bleach, Sodium Hydroxide solution, Ridoline 649 (Sulfuric Acid solution), Ridoline 120 (Hydrofluoric Acid solution)	
Air Line Lubricant (All Trenches)	Mobil Velocite	

#### Notes:

The Lamella Clarifier includes an encasing tank that has an overflow to a weir that discharges directly to the POTW. The weir must be plugged prior to cleaning the Lamella Clarifier. The Filter Presses on the mezzanine to the east of the Lamella Clarifier must also be cleaned.



#### **SUMP LIST**

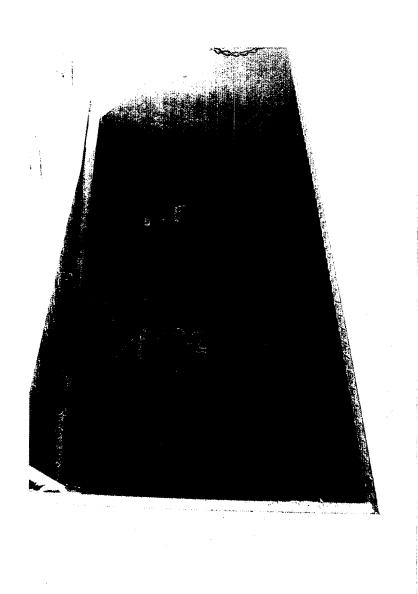
Sump Location	Dimensions (feet and inches)	Contents
Manufacturing Area	4-ft by 4-ft by 4-ft deep	Approximately 2/3 full with oily water and cans
Welding Shop	20-in. dia. by 4-ft deep	Approximately 10-inches of light oil at the bottom This sump pumps into Waste Tank #9.
Compressor Room Sump	31-in. dia. by 13t 2-in. deep	Approximately 7-inches of liquid was observed in the sump.
Former Wastewater System Tanks	Four (4) sub- grade concrete structures	Each structure was partially filled with water. One (1) sump contained a pump. The three (3) other tanks are approximately 6-ft deep.
Exterior to Red Label Room in the Warehouse Building	2-ft. dia. by 7-ft 3- in. deep	This appears to be a spill containment tank.
Sneider Filter Pit		Oily Water, Tramp Oil, Coolants
Loading Dock	3-ft by 3-ft by 6-ft deep	Blow down sump for the Boilers.

OTHER AREAS	Former Contents
Bodymaker and Baler Trenches	DTI C1 Cupper (lube oil), Soluble Oil (DTE 340B Coolant), Mobil Gear 630 (Spartan EP 220), Mobil Velocite, etc.
Compressor Room and Loading Dock Compressor Area Trenches	Compressor and Vacuum Pump Oils and Lubricants
Offloading Area/Shed (Bulk Storage Room Tanks- West side of Manufacturing Bldg.)	DTI C1 Cupper (lube oil), Bulk Over Varnish, Inside Spray, Ridoline 649, Soluble Oil (DTE 340B Coolant), etc.
Offloading Area/Shed (Bulk Storage Room Tanks – South side of Manufacturing Bldg.)	DTI C1 Cupper (lube oil), Bulk Over Varnish, Inside Spray, Ridoline 649, Soluble Oil (DTE 340B Coolant), etc.
Offloading Area/Shed (Red Label Storage Room Tanks– South side of Manufacturing Bldg.)	Isopropyl Alcohol (IPA), Mobil Gear 630 (Spartan EP 220), etc.
Offloading Area/Shed (Tramp Oil Tank– North side of Manufacturing Bldg.)	Tramp Oil

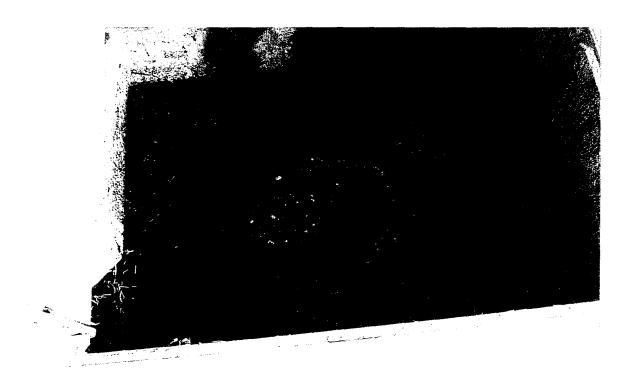
**Note:** The drawing in Attachment 4 has the areas in the Manufacturing Building highlight in pink (tanks, equipment, etc.) and yellow (trenches, sumps, pits, can washer pans, demister pans, etc.).

## **ATTACHMENT 3**

Photographs



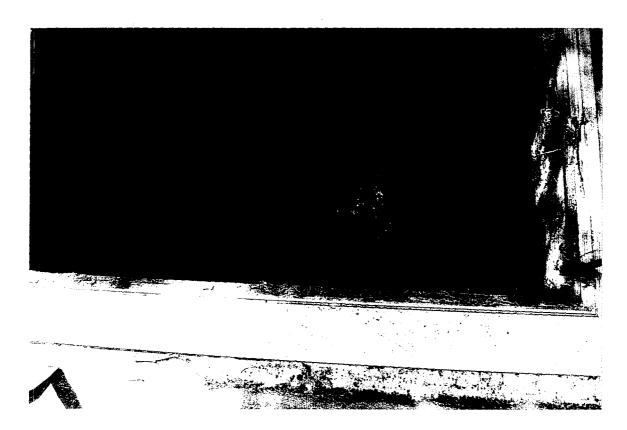
View of the water pump in a former waste water tank on the north side of the Site.



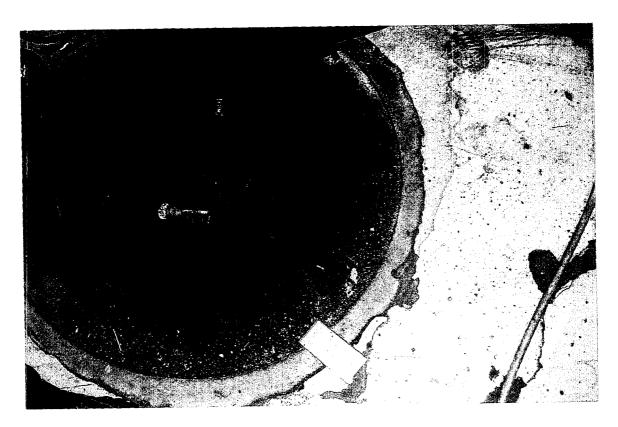
View of waste water tank on the north side of the Site.



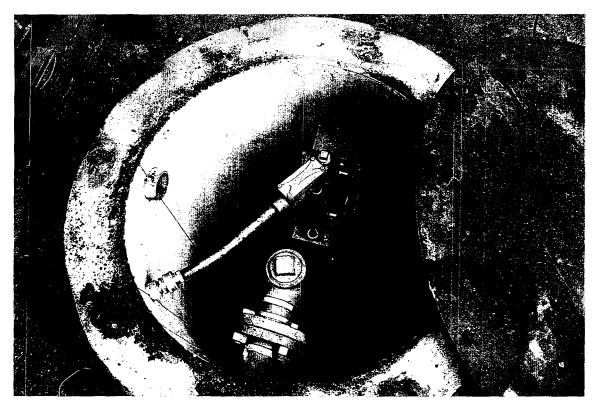
View of waste water tank on the north side of the Site.



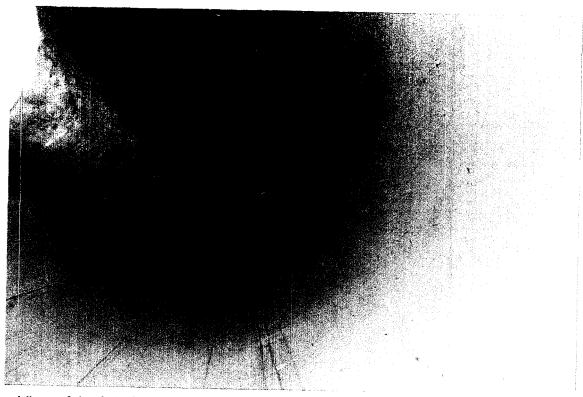
View of waste water tank on the north side of the Site.



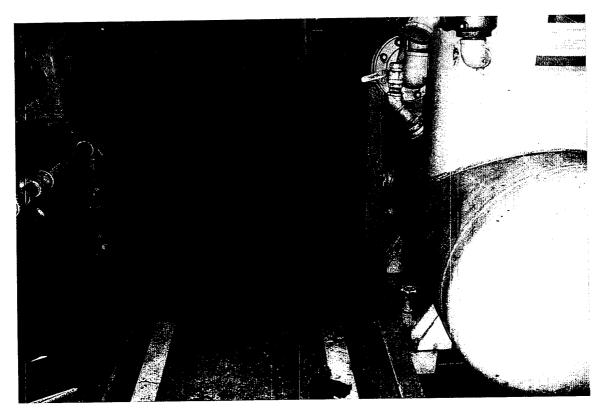
View of the opened sump in the Welding Shop on the south side of the Manufacturing Building.



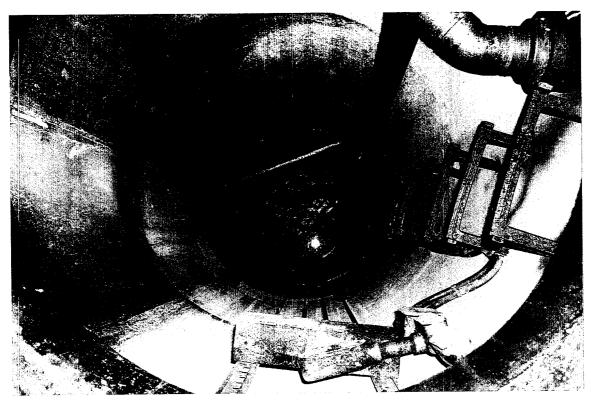
View of opened sump on the south side of the Warehouse Building.



View of the interior of the sump on the south side of the Warehouse Building.



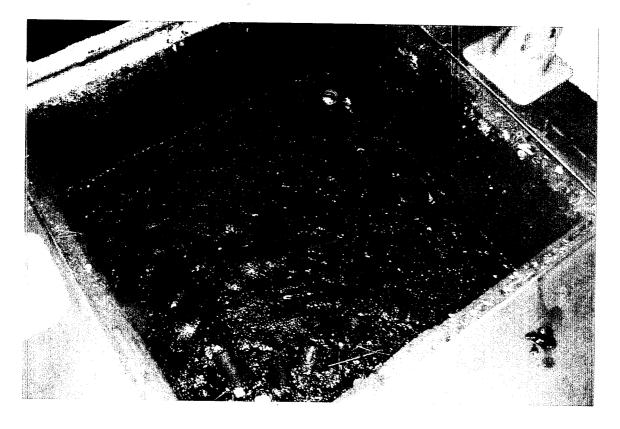
View of the sump in the Compressor Room.



View of the interior of the sump in the Compressor Room.



View of the sump at the east end of the Manufacturing Building.



View of the interior of the sump at the east end of the Manufacturing Building.

View of the drain grate cover in the Switch Gear Room in the Warehouse Building.

## **ATTACHMENT 4**

Figure

#### **MATERIAL SAFETY DATA SHEET**



#### **SECTION 1 - PRODUCT AND COMPANY INFORMATION**

PPG Industries, Inc. One PPG Place Pittsburgh, PA 15272

EMERGENCY PHONE NUMBERS (412) 434-4515 (U.S.) (24 hours/day):

(514) 645-1320 (Canada) 01-800-00-21-400 (Mexico)

0532-3889090 (China)

TECHNICAL

(513) 576-3179 (PACKAGING COATINGS) 8:00 a.m. - 5:00 p.m. EST

INFORMATION:

PRODUCT SAFETY/MSDS INFORMATION: (412) 492-5555 7:00 a.m.

- 4:30 p.m. EST

Product ID: | PRODUCT NAME: |

PPG3803801 (0819)

WATER REDUCIBLE VARNISH

SYNONYMS: ISSUE DATE:

None

EDITION NO.:

06/27/2005

EDITION NO.: CHEMICAL 2 Acrylic Melamine

FAMILY:

EMERGENCY OVERVIEW:

Combustible. Keep away from heat, sparks, flames, and other sources o ignition. Do not smoke.CAUSES EYE IRRITATION. MAY CAUSE SLIGHT SKIN IRRITATION. MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN.VAPOR AND/OR SPRAY MIST HARMFUL IF INHALED. VAPOR IRRITATES EYES, NOSE, AND THROAT.HARMFUL OR FATAL IF SWALLOWED.

#### **SECTION 2 - COMPOSITION INFORMATION**

The following Ingredient(s) marked with an "x" are considered hazardous under applicable U.S. OSHA and/or Canadian WHMIS regulations. If no ingredients are listed, then there are no U.S. OSHA and/or Canadian WHMIS hazardous ingredients in this product.

<u>Material/</u>	<u>Percent</u>	<u>Hazardous</u>	
CAS Number			
2-BUTOXY ETHANOL	1 - 5	X	
111-76-2			
DIMETHYLAMINOETHANOL	1 - 5	X	
108-01-0			
N-BUTYL ALCOHOL	1 - 5	X	
71-36-3			
(As Glycol ethers)	* .	X	See Sections 8
111-76-2	•		and 15 for
			information.

#### **SECTION 3 - HAZARDS IDENTIFICATION**

#### **ACUTE OVEREXPOSURE EFFECTS**

#### **EYE CONTACT:**

Causes eye irritation. Redness, itching, burning sensation and visual disturbances may indicate excessive eye contact.

#### SKIN CONTACT:

May cause slight skin irritation. Dryness, itching, cracking, burning, redness, and swelling are conditions associated with excessive skin contact.

#### SKIN ABSORPTION:

May be harmful if absorbed through the skin.

### INHALATION:

Vapor and/or spray mist harmful if inhaled. Vapor irritates eyes, nose, and throat.

#### INGESTION:

Harmful or fatal if swallowed

#### SIGNS & SYMPTOMS OF OVEREXPOSURE:

Repeated exposure to high vapor concentrations may cause irritation of the respiratory system and permanent brain and nervous system damage. Eye watering, headaches, nausea, dizziness and loss of coordination are indications that solvent levels are too high. Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal. Dryness, itching, cracking, burning, redness, and swelling are conditions associated with excessive skin contact.

## **MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Not applicable.

#### CHRONIC OVEREXPOSURE EFFECTS

Avoid long-term and repeated contact.

Repeated exposure to vapors above recommended exposure limits (see Section 8) may cause irritation of the respiratory system and permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal. This product either contains formaldehyde or is capable of releasing formaldehyde above 0.5 ppm under certain conditions. If this product contains free formaldehyde, formaldehyde will be listed as an ingredient in Section 2 and 11 of this MSDS; if formaldehyde is not specifically listed, this product contains ingredients capable of releasing formaldehyde under certain conditions. Formaldehyde is a known cancer hazard, a skin sensitizer and a respiratory sensitizer. Exposure to vapor of an ingredient in this product may cause temporary hazing or blurring of vision.

The effects of long-term, low level exposures to this product have not been determined. Safe handling of this material on a long-term basis should emphasize the prevention of all contact with this material to avoid any effects from repetitive acute exposures. See Section 11, of this MSDS for a detailed list of chronic health effects information available on individual ingredients in this product.

### SECTION 4 - FIRST AID MEASURES

If ingestion, irritation, any type of overexposure or symptoms of overexposure occur during or persists after use of this product, contact a POISON CONTROL CENTER, EMERGENCY ROOM OR PHYSICIAN immediately; have Material Safety Data Sheet information available. **EYE CONTACT:** 

Remove contact lens and pour a gentle stream of warm water through the affected eye for at least 15 minutes. If irritation persists, contact a poison control center, emergency room, or physician as further treatment may be necessary.

#### SKIN CONTACT:

Run a gentle stream of water over the affected area for 15 minutes. A mild soap may be used if available. If any symptoms persist, contact a poison control center, emergency room, or physician as further treatment may be necessary.

#### INHALATION:

Remove from area to fresh air. If symptomatic, contact a poison control center, emergency room or physician for treatment information.

INGESTION:

Gently wipe or rinse the inside of the mouth with water. Sips of water may be given if person is fully conscious. Never give anything by mouth to an unconscious or convulsing person. Do Not induce vomiting. Contact a poison control center, emergency room or physician right away as further treatment will be necessary.

#### **SECTION 5 - FIRE FIGHTING MEASURES**

FLAMMABLE PROPERTIES

FLASHPOINT: 180 Degrees F ( 82 Degrees C)

FLASHPOINT TEST METHOD: Pensky-Martens Closed Cup

**UEL:** Not Available.

LEL: Not Available.

**AUTOIGNITION TEMPERATURE:** 

Not Available.

Product ID: PPG3803801 (0819)
PRODUCT NAME: WATER REDUCIBLE VARNISH

#### **EXTINGUISHING MEDIA:**

Use National Fire Protection Association (NFPA) Class B extinguishers (carbon dioxide, dry chemical, or universal aqueous film forming foam) designed to extinguish NFPA Class IIIA combustible liquid fires. PROTECTION OF FIREFIGHTERS:

Water spray may be ineffective. Water spray may be used to cool closed containers that are exposed to extreme heat. If water is used, fog nozzles are preferable. Firefighters should wear self-contained breathing apparatus and full protective clothing.

#### UNUSUAL FIRE AND EXPLOSION HAZARDS:

Closed containers may explode or burst (due to the build-up of steam pressure) when exposed to extreme heat. Avoid using sodium nitrite or other nitrating agents in formulations containing this product. Nitrosamines, suspected of causing cancer, can be formed. May produce hazardous decomposition products when exposed to extreme heat. Extreme heat includes, but is not limited to, flame cutting, brazing, and welding.

#### SECTION 6 - ACCIDENTAL RELEASE MEASURE

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Provide maximum ventilation. Only personnel equipped with proper respiratory, skin, and eye protection should be permitted in the area. Remove all sources of ignition. Take up spilled material with sand, vermiculite, or other noncombustible absorbent material and place in clean, empty containers for disposal. Only the spilled material and the absorbant should be placed in this container.

#### SECTION 7 - HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN DURING HANDLING AND STORAGE: If this material is part of a multiple component system, read the Material Safety Data Sheet(s) for the other component or components before blending as the resulting mixture may have the hazards of all of its parts. STORAGE:

Protect from freezing.

## SECTION 8 - EXPOSURE CONTROLS & PERSONAL PROTECTION ENGINEERING CONTROLS:

Provide general dilution or local exhaust ventilation in volume and pattern to keep the concentration of ingredients listed in Section 8 below the lowest suggested exposure limits, the LEL below the stated limit, and to remove decomposition products during welding or flame cutting.

## PERSONAL PROTECTIVE EQUIPMENT

EYES:

Wear safety glasses with side shields.

SKIN/GLOVES:

Wear protective clothing. Gloves should be constructed of: neoprene rubber or nitrile rubber. No specific permeation/degradation testing have been done on protective clothing for this product. Recommendations for skin protection are based on infrequent contact with this product. For frequent contact or total immersion, contact a manufacturer of protective clothing for appropriate chemical impervious equipment. Clean contaminated clothing and shoes.

#### RESPIRATOR:

Overexposure to vapors may be prevented by ensuring proper ventilation controls, vapor exhaust or fresh air entry. A NIOSH- approved air purifying respirator with the appropriate chemical cartridges or a positive-pressure, air-supplied respirator may also reduce exposure. Read the respirator manufacturer's instructions and literature carefully to determine the type of airborne contaminants against which the respirator is effective, its limitations, and how it is to be properly fitted and used. Provide general dilution or local exhaust ventilation in volume and pattern to keep the concentration of ingredients listed in Section 2 below the lowest suggested exposure limits, the LEL below the stated limit, and to remove decomposition products during welding or flame cutting.

GENERAL HYGIENE - ESTABLISHED EXPOSURE LIMITS

If Threshold Limit Values (TLVs) have been established by ACGIH, OSHA, Ontario or PPG, they will be listed below. These limits are intended for use in the practice of industrial hygiene as guidelines or recommendations in the control of potential workplace health hazards. These limits are not a relative index of toxicity and should not be used by anyone without industrial hygiene training.

	Material/ CAS Number	Percent	ACGIH TLV	ACGIH STEL	OSHA PEL	OSHA STEL
	2-BUTOXY ETHANOL 111-76-2	1 - 5	20 PPM	Not established	S- 25 ppm	Not established
	N-BUTYL ALCOHOL 71-36-3	1 - 5	C_ 50 ppm	Not established	C-S-50 ppm	Not established
l	(As Glycol ethers) 111-76-2	*	Not Listed	Not Listed	Not Listed	Not Listed

Key: OSHA=Occupational Safety and Health Administration;
PEL=Permissable Exposure Limit; Ceiling=PEL Ceiling Limit; STEL=PEL
Short-Term Exposure Limit: Skin=OSHA Skin Designation.

Material/ CAS Number	Percent	Ontario TWA	Ontario STEL	PPG IPEL	PPG STEL
2-BUTOXY ETHANOL 111-76-2	1 - 5	S- 20 PPM		Not established	Not established
DIMETHYLAMINOE THANOL 108-01-0	1 - 5	3 РРМ	6 PPM	Not established	Not established
N-BUTYL ALCOHOL 71-36-3	1 - 5	C-S-50 ppm	Not established	Not established	Not established
(As Glycol ethers) 111-76-2	*	Not Listed	Not Listed	Not established	Not established

Key: ACGIH=American Conference of Governmental Industrial Hygienists; OSHA=Occupational Safety and Health Administration; TLV=Threshold Limit Value; TWA=Time Weighted Average; PEL=Permissible Exposure Limit; IPEL=Internal Permissible Exposure Limit; Ceiling=TLV or PEL Ceiling Limit; STEL=TLV or PEL Short-Term Exposure Limit; Skin= Skin Absorption Designation. [C- Ceiling Limit; S-Potential Skin Aborption; R-Respirable Dust] Additional Information Not applicable.

## SECTION 9 - PHYSICAL & CHEMICAL PROPERTIES

(FORMULA VALUES, NOT SALES SPECIFICATIONS)

SPECIFIC GRAVITY: 1.058
PHYSICAL STATE: Liquid

Percent Solids: 40.63
Percent Volatile by Volume: 63.950
pH: Not available.

pH: Not available.
ODOR THRESHOLD: Not available.
Vapour Pressure: 17.1 mmHg

ODOR/APPEARANCE: Viscous liquid with an odor characteristic of the chemical family

and any solvents listed in Section 2.

VAPOR DENSITY: HEAVIER THAN AIR

Evaporation Rate: 34

BOILING POINT OR RANGE: 212 - 340Degrees F
Freezing Point or Range: Not Applicable.
Melting Point or Range(°C): Not Applicable.

Melting Point or Range(°C): Not Applicable.

Partition coefficient (n- Not Applicable.

octanol/water)

WEIGHT PER GALLON: 8.82 (U.S.) / 10.5 (IMPERIAL)

#### PPG Industries, Inc. One PPG Place Pittsburgh, PA 15272

Product ID: PPG3803801 (0819) PRODUCT NAME: WATER REDUCIBLE VARNISH

#### **SECTION 10 - STABILITY AND REACTIVITY**

STABILITY:

This product is normally stable and will not undergo hazardous reactions. CONDITIONS TO AVOID:

None Known.

INCOMPATIBLE MATERIALS:

Avoid contact with strong alkalies, strong mineral acids, or strong oxidizing agents.

HAZARDOUS POLYMERIZATION:

None Known.

**HAZARDOUS DECOMPOSITION PRODUCTS:** 

- Carbon monoxide - Carbon dioxide - Oxides of nitrogen - Lower molecular weight polymer fractions

### SECTION 11 - TOXICOLOGICAL INFORMATION

#### ACUTE TOXICITY

Material/ CAS Number	Percent	ORAL LD50 (g/kg)	DERMAL LD50 (g/kg)	INHALATION LC50 (mg/l)
2-BUTOXY ETHANOL 111-76-2	1 - 5	.47 g/kg	.22 g/kg	2.18 mg/L. 4 h
N-BUTYL ALCOHOL 71-36-3	1 - 5	.79 g/kg	3.40 g/kg	24.25 mg/L. 4 h

#### **CHRONIC TOXICITY**

**Target Organs:** 

- Metabolizes to carcinogen - Bone marrow and blood tissues - Blood - Kidney - Liver - Carcinogen - Brain - Central nervous system - Lung

**Mutagenicity Toxicity:** 

This has not been tested for this product.

Reproductive Toxicity:

This has not been tested for this product.

SUPPLEMENTAL HEALTH INFORMATION:

Materiai/ CAS Number	Percent	Ingredient Specific Animal Data:
2-BUTOXY ETHANOL 111-76-2		This product contains an ethylene series glycol ether and/or acetate which has been shown to cause adverse effects on the kidneys, liver, blood and/or blood-forming tissue. In a two-year NTP inhalation study, there was no significant increase in the incidence of any type of tumor in rats exposed to 2-butoxy ethanol at concentrations up to 125 ppm except a questionable trend in the incidence of adrenal gland tumors in female rats. When mice were exposed to concentrations of 62.5, 125, and 250 ppm, there was some evidence of carcinogenicity found in the liver of male mice and the forestomach of female mice at 250 ppm.
DIMETHYL AMINOETH ANOL 108-01-0		An ingredient in this product may be converted to nitrosamines in the body. Nitrosamines have produced tumors in laboratory animals by oral administration or by injection under the skin.

#### **SECTION 12 - ECOLOGICAL INFORMATION**

POTENTIAL ENVIRONMENTAL EFFECTS

**Ecotoxicity:** 

No Information Available.

**ENVIRONMENTAL FATE** 

Mobility: **Biodegradation:** Bioaccumulation: No Information Available. No Information Available. No Information Available. PHYSICAL/CHEMICAL

**Hydrolysis:** Photolysis: No information available No information available

#### SECTION 13 - DISPOSAL CONSIDERATIONS

Provide maximum ventilation, only personnel equipped with proper respiratory and skin and eye protection should be permitted in the area. Take up spilled material with sawdust, vermiculite, or other absorbent material and place in containers for disposal.

Waste material must be disposed of in accordance with federal, state, provincial and local environmental control regulations. Empty containers should be recycled by an appropriately licensed reconditioner/salvager or disposed of through a permitted waste management facility. Additional disposal information is contained on the Environmental Data Sheet for this product, which can be obtained from your PPG representative.

SECTION 14 - TRANSPORTATION INFORMATION			
Proper Shipping Name:	Paint - Not Regulated, No Fire Point		
NOS Technical Name:	None		
Hazard Class:	None		
Subsidiary Class(es):	None		
UN Number:	None		
Packing Group:	None		

USA - RO Hazardous Substances: None **USA-RQ Hazardous Substance** None

Threshold Ship Weight:

Marine Pollutant Name:

None

#### **SECTION 15 - REGULATORY INFORMATION**

INVENTORY STATUS

U.S. TSCA: This product and/or all of its components are listed on the U.S. TSCA Inventory or is otherwise exempt from TSCA Inventory reporting requirements.
FEDERAL REGULATIONS

Material/ CAS Number	Percent	CERCLA HS -	SARA EHS- TPQ (LBS)	SARA 313
2-BUTOXY ETHANOL 111-76-2	1 - 5	Not Listed	Not Listed	Not Listed
DIMETHYLAMINOE THANOL 108-01-0	1 - 5	Not Listed	Not Listed	Not Listed
N-BUTYL ALCOHOL 71-36-3	1 - 5	5000 lbs	Not Listed	Listed
(As Glycol ethers) 111-76-2	*	Not Listed	Not Listed	Listed

SARA 311/312

Health (acute): Health (chronic): Yes Yes

Fire (flammable): Pressure:

Yes No

Reactivity Nο WHMIS HAZARD CLASS: - Class B, Division 3 - Class D, Division 2, Subdivision A - Class D, Division 1, Subdivision B

STATE/PROVINCIAL REGULATIONS Additional information

#### PPG Industries, Inc. One PPG Place Pittsburgh, PA 15272

Product ID: PPG3803801 (0819)
PRODUCT NAME: WATER REDUCIBLE VARNISH

Key: IARC- International Agency on the Research of Cancer; ACGIH-American Conference of Governmental Industrial Hygienists; NTP-National Toxicology Program \*Denotes chemical as NTP Known Carcinogen; + Denotes NTP Possible Carcinogen; OSHA-Occupational Safety and Health Administration.

#### **SECTION 16 - OTHER INFORMATION**

Hazard Rating Systems NFPA Rating: 2 20 HMIS Rating: 2\*20

Rating System: 0=Minimal, 1=Slight, 2=Moderate, 3=Serious, 4=Severe, \*=Chronic Effects.

HMIS=Hazardous Materials Identification System; NFPA=National Fire Protection Association;

Safe handling of this product requires that all of the information on the MSDS be evaluated for specific work environments and conditions of use.

PREPARED BY: Product Safety Department REASON FOR REVISION: Section 2 has been updated. Changes to this section may also result in changes in sections 8, 11 and/or 15. Date. Edition. Updated MSDS format.

This Material Safety Data Sheet has been prepared in accordance with Canada's Workplace Hazardous Materials Information System (WHMIS) and the OSHA Hazard Communication Standard (29 CFR 1910.1200), the supplier notification requirements of SARA Title III, Section 313 and other applicable right-to-know regulations. Additional environmental information is contained on the Environmental Data Sheet for this product, which can be obtained from your PPG representative.

P-3803801 000002 (00296818.004)(06/24/05)

031111, 000, 0819

\*\*\* END OF MSDS \*\*\*



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## MATERIAL SAFETY DATA SHEET

#### SECTION

#### PRODUCT AND COMPANY IDENTIFICATION

#### **PRODUCT**

Product Name: MOBIL VELOCITE OIL NO. 10
Product Description: Base Oil and Additives

Product Code: 201560509090, 600684-00, 970574

Intended Use: Circulating/gear oil

#### **COMPANY IDENTIFICATION**

Supplier:

**EXXON MOBIL CORPORATION** 

3225 GALLOWS RD.

FAIRFAX, VA. 22037 USA

24 Hour Health Emergency609-737-4411Transportation Emergency Phone800-424-9300ExxonMobil Transportation No.281-834-3296MSDS Requests713-613-3661

 MSDS Requests
 713-613-3661

 Product Technical Information
 800-662-4525, 800-947-9147

MSDS Internet Address http://www.exxon.com, http://www.mobil.com

#### SECTION 2

#### COMPOSITION / INFORMATION ON INGREDIENTS

No Reportable Hazardous Substance(s) or Complex Substance(s).

#### **SECTION 3**

#### HAZARDS IDENTIFICATION

This material is not considered to be hazardous according to regulatory guidelines (see (M)SDS Section 15).

#### POTENTIAL HEALTH EFFECTS

Low order of toxicity. Excessive exposure may result in eye, skin, or respiratory irritation. High-pressure injection under skin may cause serious damage.

NFPA Hazard ID:

Health: 0

Flammability: 1

Reactivity: 0

HMIS Hazard ID:

Health: 0

Flammability: 1

Reactivity: 0

**NOTE:** This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

#### SECTION 4

#### FIRST AID MEASURES

#### INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use



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mouth-to-mouth resuscitation.

#### **SKIN CONTACT**

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

#### **EYE CONTACT**

Flush thoroughly with water. If irritation occurs, get medical assistance.

#### INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

#### SECTION 5

#### FIRE FIGHTING MEASURES

#### **EXTINGUISHING MEDIA**

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

#### **FIRE FIGHTING**

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Aldehydes, Sulfur oxides, Smoke, Fume, Oxides of carbon, Incomplete combustion products

### FLAMMABILITY PROPERTIES

Flash Point [Method]: >174C (345F) [ ASTM D-92]

Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0

Autoignition Temperature: N/D

#### SECTION 6

#### ACCIDENTAL RELEASE MEASURES

#### **NOTIFICATION PROCEDURES**

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. U.S. regulations require reporting releases of this material to the environment which exceed the reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

#### SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.



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**Water Spill:** Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

#### **ENVIRONMENTAL PRECAUTIONS**

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

#### SECTION 7

#### HANDLING AND STORAGE

#### **HANDLING**

Prevent small spills and leakage to avoid slip hazard.

Static Accumulator: This material is a static accumulator.

#### **STORAGE**

Do not store in open or unlabelled containers.

#### SECTION 8

#### EXPOSURE CONTROLS / PERSONAL PROTECTION

**Exposure limits/standards for materials that can be formed when handling this product:** When mists / aerosols can occur, the following are recommended: 5 mg/m³ - ACGIH TLV, 10 mg/m³ - ACGIH STEL, 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

#### **ENGINEERING CONTROLS**

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

#### **PERSONAL PROTECTION**

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

**Respiratory Protection:** If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of



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respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Work conditions can greatly effect glove durability; inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

#### **ENVIRONMENTAL CONTROLS**

See Sections 6, 7, 12, 13.

#### SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Typical physical and chemical properties are given below. Consult the Supplier in Section 1 for additional data.

#### **GENERAL INFORMATION**

Physical State: Liquid

Color: Amber **Odor:** Characteristic Odor Threshold: N/D

#### IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 C): 0.861

Flash Point [Method]: >174C (345F) [ ASTM D-92]

Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0

Autoignition Temperature: N/D Boiling Point / Range: > 316C (600F)

Vapor Density (Air = 1): > 2 at 101 kPa

Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20 C Evaporation Rate (n-butyl acetate = 1): N/D

pH: N/A

Log Pow (n-Octanol/Water Partition Coefficient): > 3.5

Solubility in Water: Negligible

Viscosity: 22 cSt (22 mm2/sec) at 40 C | 4 cSt (4 mm2/sec) at 100C



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Oxidizing Properties: See Sections 3, 15, 16.

OTHER INFORMATION

Freezing Point: N/D Melting Point: N/A

Pour Point: -21°C (-6°F)

DMSO Extract (mineral oil only), IP-346: < 3 %wt

#### **SECTION 10**

#### STABILITY AND REACTIVITY

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

HAZARDOUS POLYMERIZATION: Will not occur.

#### SECTION 11

### TOXICOLOGICAL INFORMATION

#### **ACUTE TOXICITY**

Route of Exposure	Conclusion / Remarks
Inhalation	
Toxicity (Rat): LC50 > 5000 mg/m3	Minimally Toxic. Based on test data for structurally similar materials.
Irritation: No end point data.	Negligible hazard at ambient/normal handling temperatures.  Based on assessment of the components.
Ingestion	
Toxicity (Rat): LD50 > 2000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Skin	
Toxicity (Rabbit): LD50 > 2000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Irritation (Rabbit): Data available.	Negligible irritation to skin at ambient temperatures. Based on test data for structurally similar materials.
Eye	
Irritation (Rabbit): Data available.	May cause mild, short-lasting discomfort to eyes. Based on test data for structurally similar materials.

#### **CHRONIC/OTHER EFFECTS**

#### Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.

Additional information is available by request.



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The following ingredients are cited on the lists below: None.

-- REGULATORY LISTS SEARCHED--

1 = NTP CARC

3 = IARC 1

5 = IARC 2B

2 = NTP SUS

4 = IARC 2A

6 = OSHA CARC

## SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

#### **ECOTOXICITY**

Material -- Not expected to be harmful to aquatic organisms.

#### MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

#### PERSISTENCE AND DEGRADABILITY

#### **Biodegradation:**

Base oil component -- Expected to be inherently biodegradable

#### **BIOACCUMULATION POTENTIAL**

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

#### SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

#### **DISPOSAL RECOMMENDATIONS**

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

#### REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrositivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning PRECAUTIONARY LABEL TEXT: Empty containers may retain residue and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to refill or clean container since residue is difficult to remove. Empty drums should be completely drained, properly bunged and promptly returned to a drum



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reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

SECTION 14. TRANSPORT INFORMATION

**LAND (DOT)**: Not Regulated for Land Transport

LAND (TDG): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

AIR (IATA): Not Regulated for Air Transport

## SECTION 15 REGULATORY INFORMATION

**OSHA HAZARD COMMUNICATION STANDARD:** When used for its intended purposes, this material is not classified as hazardous in accordance with OSHA 29 CFR 1910.1200.

NATIONAL CHEMICAL INVENTORY LISTING: AICS, DSL, EINECS, ENCS, KECI, PICCS, TSCA

EPCRA: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

**SARA (313) TOXIC RELEASE INVENTORY:** This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The Following Ingredients are Cited on the Lists Below:\*

Chemical Name	CAS Number	List Citations
DIPHENYLAMINE	122-39-4	5, 9

### -- REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

<sup>\*</sup> EPA recently added new chemical substances to its TSCA Section 4 test rules. Please contact the supplier to confirm whether the ingredients in this product currently appear on a TSCA 4 or TSCA 12b list.

	OTHER INFORMATION	
SECTION 16		

N/D = Not determined, N/A = Not applicable



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THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

No revision information is available.

The information and recommendations contained herein are, to the best of ExxonMobil's knowledge and belief, accurate and reliable as of the date issued. You can contact ExxonMobil to insure that this document is the most current available from ExxonMobil. The information and recommendations are offered for the user's consideration and examination. It is the user's responsibility to satisfy itself that the product is suitable for the intended use. If buyer repackages this product, it is the user's responsibility to insure proper health, safety and other necessary information is included with and/or on the container. Appropriate warnings and safe-handling procedures should be provided to handlers and users. Alteration of this document is strictly prohibited. Except to the extent required by law, republication or retransmission of this document, in whole or in part, is not permitted. The term, "ExxonMobil" is used for convenience, and may include any one or more of ExxonMobil Chemical Company, Exxon Mobil Corporation, or any affiliates in which they directly or indirectly hold any interest.

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UNIVAR USA - MSDS Univar USA Inc.

17425 NE Union Hill Road

Redmond, WA 98052 (425) 889-3400

For Emergency Assistance involving chemicals call - CHEMTREC (800) 424-9300

The Version Date and Number for this MSDS is: 02/20/2006 - #021

PRODUCT NAME:

LIQUICHLOR/SODIUM HYPOCHLORITE 9-16%

MSDS NUMBER:

ox622680

DATE ISSUED:

01/23/2006

SUPERSEDES:

02/16/2004

ISSUED BY:

008546

\* \*

MATERIAL SAFETY DATA SHEET

SECTION I **IDENTIFICATION** 

Distribution: UNIVAR USA 6100 Carillon Point Kirkland, WA 98033 425-889-3400

TRADE NAME:

LIQUICHLOR/SODIUM HYPOCHLORITE 9-16%

Sodium Hypochlorite

CHEMICAL NAME: FORMULA:

Na0C1

DOT SHIPPING NAME: DOT HAZARD CLASS:

Hypochlorite Solution

UN 1791

UN/NA NUMBER: DOT LABEL: DOT PLACARD:

CAS NUMBER:

Corrosive Corrosive

PACKING GROUP:

III

REPORTABLE QUANTITY:

Sodium Hypochlorite: 100 Pounds/45.4 Kilograms 7681-52-9

NFPA DESIGNATION:

The NFPA has not rated sodium hypochlorite.

HMIS DESIGNATION:

Fire 0 Reactivity 1 Health 3

SECTION II - HAZARDOUS INGREDIENTS

**OSHA ACGIH** % BY CAS NO. **MATERIAL** WEIGHT PEL TLV 7681-52-9 N/A N/A Sodium Hypochlorite 9-16

Sodium Hydroxide

1310-73-2 0.1 - 2.0

2mg/m3 ceiling 2mWm3 STEL /CEIL(c)

**Inert Ingredients** 

Balance N/A N/A

ceiling N/A

CARCINOGENICITY STATUS: NTP - No, IARC - No, OSHA - No.

SECTION III - PHYSICAL DATA

**APPEARANCE:** Yellow-green liquid

219 deg F (104 deg C) for 12.5% NaOC1 by wt. - 11 deg F (- 24 deg C) for 12.5% NaOC1 by wt. **BOILING POINT:** FREEZING POINT:

ODOR: Chlorine

:Hq

12.5 - 13.5 s.u. @ 25 deg C 2.15 @ 23 deg C for 12.5% NaOC1 by wt. VISCOSITY (Cs):

% VOLATILE BY VOLUME: Variable water plus products of decomposition

SOLUBILITY IN WATER: Complete

SPECIFIC GRAVITY (Water----1): 1.196 @ 20 deg C for 12.5% NaOC1 by wt.

VAPOR DENSITY (AIR=1): Not available

VAPOR PRESSURE (mm Hg): Variable water plus products of decomposition

SECTION IV - FIRE AND EXPLOSION DATA

FLASH POINT (Test method): Not applicable

AUTO IGNITION TEMPERATURE: Not applicable

FLAMMABLE LIMITS IN AIR (Volume %): Not applicable

EXTINGUISHING MEDIA: Flood with water or carbon dioxide (CO2)

SPECIAL FIRE FIGHTING PROCEDURES: Use National Institute of Occupational Safety & Health (NIOSH) approved respirator with acid type canister or use self-contained breathing apparatus. Unusual fire and explosion hazards: material is a strong oxidizer. Contact with combustibles may initiate or promote combustion. Acid and heat accelerate decomposition. Decomposition products may include chlorine.

SECTION V - HEALTH HAZARD INFORMATION

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE No medical conditions are known to be aggravated by exposure.

ROUTES OF EXPOSURE

INHALATION: Fumes from spills can cause severe irritation and chemical burns to the nose, throat, and lungs. Very little hazard from properly stored

SKIN CONTACT: Severe irritant, reddening of skin, can cause chemical burns to skin.

SKIN ABSORPTION: Same as skin contact.

EYE CONTACT: Severe irritant, corrosive, can severely burn eyes.

INGESTION: Causes irritation of membranes of the mouth, throat, and stomach pain and possible ulceration. LD50 (oral, rat) for 12.5% NaOCl is approximately 5 g/kg body weight.

EFFECTS OF OVEREXPOSURE

ACUTE OVEREXPOSURE (see Routes of Exposure above) SWALLOWING: See "ingestion" under routes of exposure.

SKIN CONTACT: severe Irritant, reddening of skin, skin damage, chemical burns.

INHALATION: Fumes from spills are very irritating to mucous membranes.

EYE CONTACT: Extreme irritant, corrosive.

CHRONIC OVEREXPOSURE (see Routes of Exposure above)

EYE: Can cause damage.

SKIN: Can cause damage, chemical burns.

**EMERGENCY AND FIRST AID PROCEDURES** 

IF ON SKIN OR CLOTHING: Take off contaminated clothing rinse skin immediately with plenty of water for 15-20 minutes; call a poison control center or doctor for treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes; remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye; call a poison control center or doctor for treatment advice.

IF SWALLOWED: Call poison control center or doctor immediately for treatment advice; have person sip a glass of water if able to swallow, do not induce vomiting unless told to do so by the poison control center or doctor, do not give anything by mouth to an unconscious person.

IF INHALED: Move person to fresh air; if person is not breathing. call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible; call a poison control center or doctor for further treatment advice. Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

SECTION VI - REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY Solutions are fairly stable in concentrations below 10%. Stability decreases with concentration, heat, light, exposure, decrease in pH, and contamination with heavy metals, such as nickel, cobalt, copper, and iron.

**INCOMPATIBILITY** 

Acids, alcohols, amines, ammonia, chlorinated isocyanurates, combustibles, cyanides, detergents, ethers, hydrocarbons, oxidizable materials, reducing agents. Corrosive to most metals.

**DECOMPOSITION PRODUCTS** 

Hypochlorous Acid (HOC1), chlorine, hydrochloric acid. Composition depends upon temperature and decrease in pH. Additional decomposition products, which depend upon pH, temperature and time, are sodium chloride, sodium chlorate and oxygen.

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION Will not occur.

SECTION VII - SPILL OR LEAK PROCEDURES

IN THE EVENT OF A TRANSPORTATION EMERGENCY, CALL CHEMTREC: (800) 424-9300

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED Cleanup personnel must wear proper protective equipment (See Section VIII). Contain in diked area. Neutralize with sodium bisulfite or ferrous salt solutions. Place neutralized material in DOT specification approved container(s). Flush area with large amounts of water. Comply with all Federal, State and Local reporting requirements.

WASTE DISPOSAL

Contact Federal, State, County, and Local environmental regulators for quidance regarding proper disposal .

RCRA: Test waste material for corrosivity, D002, prior to disposal.

SECTION VIII - SPECIAL PROTECTION INFORMATION

VENTILATION REQUIREMENTS: Local exhaust is recommended.

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT RESPIRATORY: Use National Institute of Occupational Safety and Health (NIOSH) or Mine Safety and Health Administration (MSHA) approved respirator appropriate for this product when permissible exposure limits are exceeded.

EYES: Use chemical goggles and face shield.

GLOVES: Use chemical resistant rubber, plastic, or neoprene gloves.

OTHER: Use chemical resistant splash apron and boots. Safety shower and eye wash fountain should be located nearby.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING DANGER: This product is corrosive and may cause severe skin irritation or chemical burns to broken skin. Causes eye damage. Do not get in eyes, on skin or on clothing. Wear goggles and face shield and chemical resistant gloves when handling this product. Wash after handling. Avoid breathing vapors. Vacate poorly ventilated areas as soon as possible. Do not return until odors have dissipated.

PROPER STORAGE AND DISPOSAL REQUIREMENTS Store this product in a cool, dry area away from direct sunlight and heat to avoid deterioration. In case of spill, flood areas with large quantities of

Disposal for domestic use: Do not reuse container. Rinse thoroughly before discarding in trash. Disposal for all other uses: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Do not contaminate water, food, or feed by storage, disposal or cleaning of equipment. Store in an upright position!!!

OTHER PRECAUTIONS

STRONG OXIDIZING AGENT: Mix only with water according to label directions. Mixing this product with gross filth such as feces, urine, etc., or with ammonia, acids, detergents or other chemicals may release hazardous gases irritating to eyes, lungs and mucous membranes.

REGULATORY STATUS INFORMATION SECTION X

This product is listed in the Toxic Substances Control Act (TSCA) Inventory of Chemical Substances.

Manufactured in Accordance with AWWA Standard for Hypochlorites. AWWA B300-

SARA Title III Extremely Hazardous Substance: No

SARA Title III Toxic Chemical: No

SARA 311/312: Acute Hazard, Chronic Hazard, Fire Hazard, Reactivity Hazard Page 4

EPA CLEAN AIR ACT: This product does not contain nor is it manufactured with Ozone depleting substances.

Super fund Reportable Discharge = 100 pounds (100% NaOCl)

CERCLA Hazardous Material: Yes California Proposition 65: No

For Additional Information: Contact: MSDS Coordinator - Univar USA During business hours, Pacific Time - (425) 889-3400

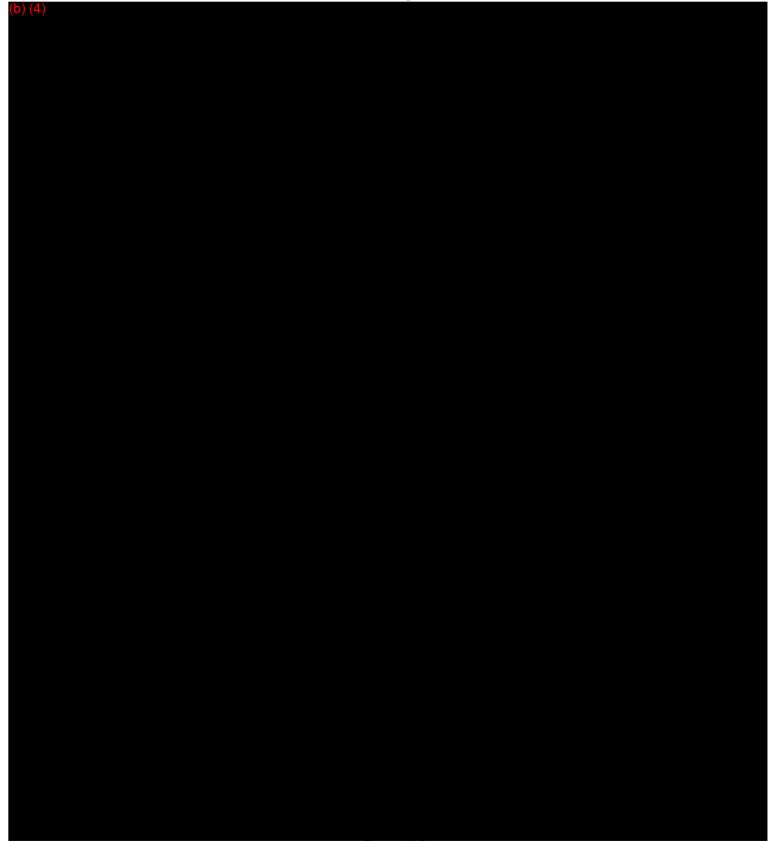
NOTICE Univar USA expressly disclaims all express or implied warranties of merchantibility and fitness for a particular purpose with respect to the product or information provided herein, and shall under no circumstances be liable for incidental or consequential damages.

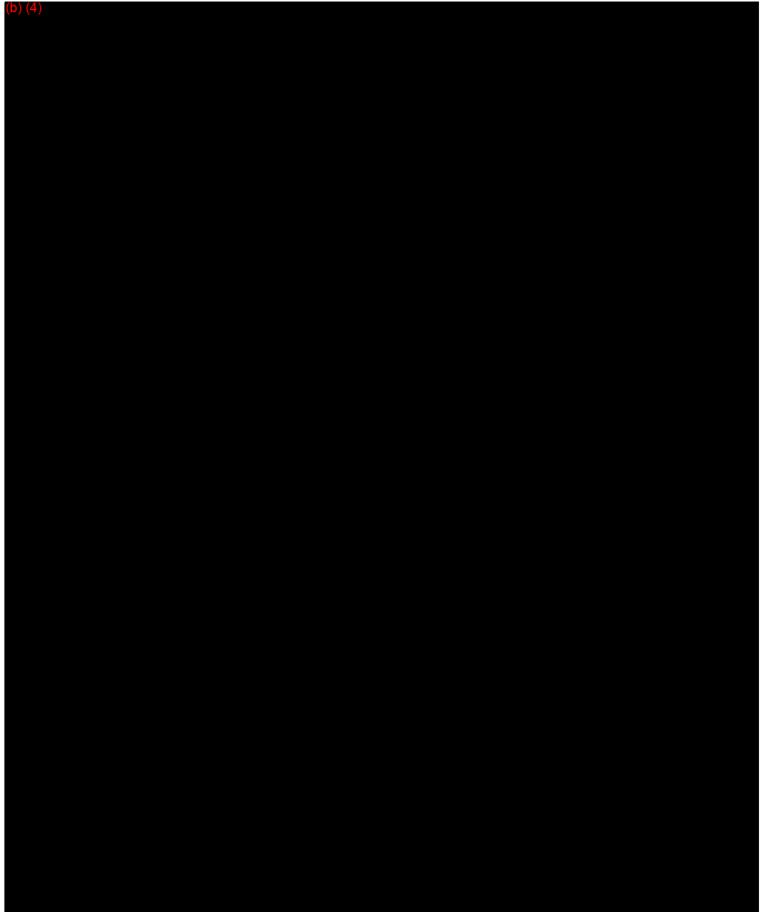
Do not use ingredient information and/or ingredient percentages in this MSDS as a product specification. For product specification information refer to a Product Specification Sheet and/or a Certificate of Analysis. These can be obtained from your local Univar USA Sales Office.

All information appearing herein is based upon data obtained from the manufacturer and/or recognized technical sources. While the information is believed to be accurate, Univar USA makes no representations as to its accuracy or sufficiency. Conditions of use are beyond Univar USA's control. Therefore, users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their particular purposes, and they assume all risks of their use, handling, and disposal of the product or from the publication or use of, or reliance upon, information contained herein. This information relates only to the product designated herein and does not relate to its use in combination with any other material or in any other process.

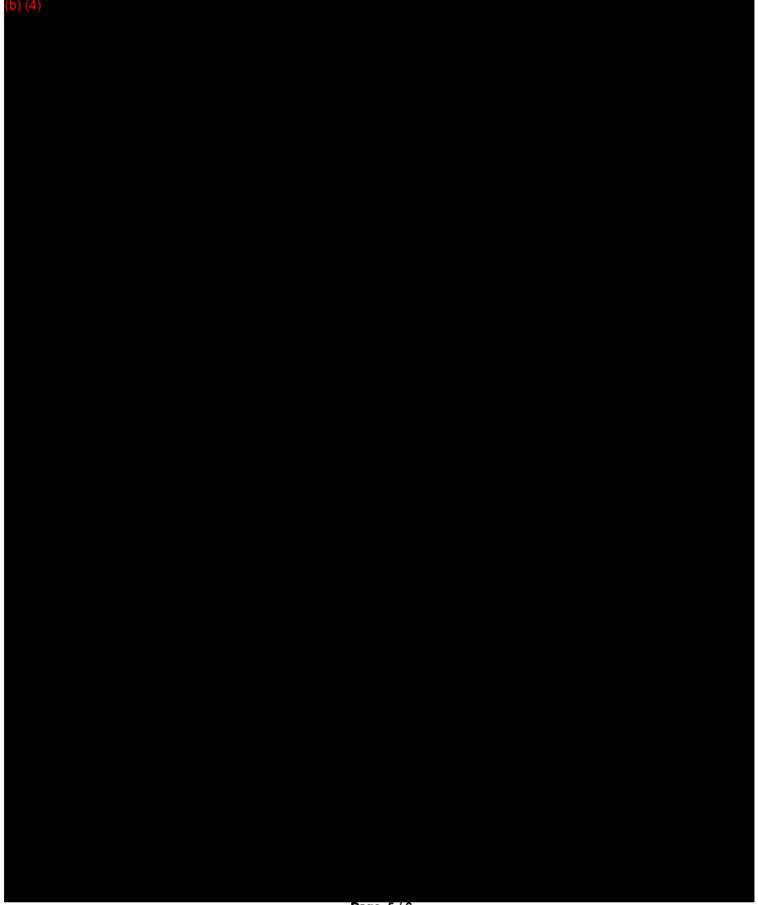
END OF MSDS

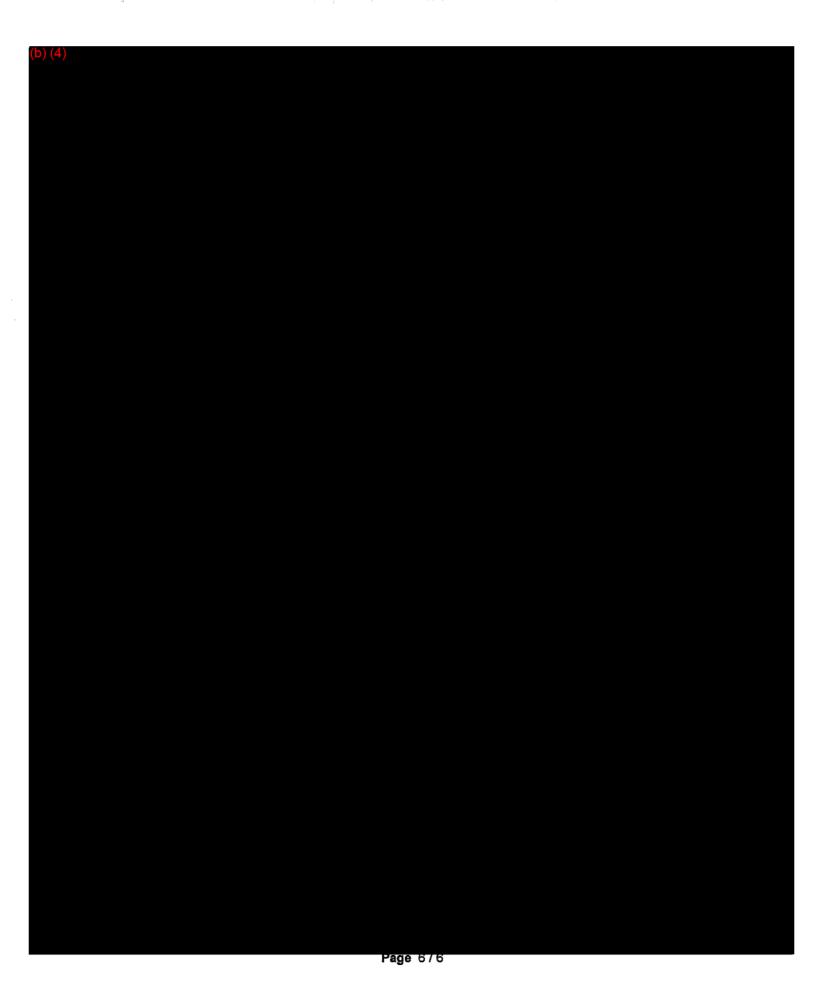
# The Valspar Corporation Material Safety Data Sheet











50% liquid caustic- sodium hydroxide

UNIVAR USA - MSDS Univar USA Inc. 17425 NE Union Hill Road Redmond, WA 98052 (425) 889-3400

For Emergency Assistance involving chemicals call - CHEMTREC (800) 424-9300

The Version Date and Number for this MSDS is: 08/18/2006 - #015

PRODUCT NAME:

CAUSTIC SODA LIQUID (ALL GRADES)

MSDS NUMBER:

oz32415

DATE ISSUED:

03/10/2006

**SUPERSEDES:** 

12/09/2005

ISSUED BY:

008730

\* \*

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Distributed by: Univar USA Inc. 17425 NE Union Hill Road Redmond, WA 425-889-3400 98052

SUBSTANCE: CAUSTIC SODA LIQUID (ALL GRADES)

TRADE NAMES:

Caustic Soda Diaphragm Grade 10%, 15%, 18%, 20%, 25%, 30%, 35%, 40%, 50%; Caustic Soda Rayon Grade 18%, 20%, 25%, 30%, 50%; 50% Caustic Soda Rayon Grade OS; Caustic Soda Membrane 6%, 18%, 20%, 25%, 30%, 48%, 50%; 50% Caustic Soda Membrane OS; 50% Caustic Soda Diaphragm OS; Caustic Soda Low Salt 50%; 25% Caustic Soda Purified; 50% Caustic Soda Purified OS; Caustic Soda Purified OS Membrane (Northeast); 50% Caustic Soda Diaphragm (West Coast); 50% Blended Rayon Grade Blended; Membrane Cell Liquor

**SYNONYMS:** 

Sodium hydroxide solution; Liquid caustic; Lye solution; Caustic; Lye; Soda

PRODUCT USE: metal finishing, cleaner, process chemical, petroleum industry

2. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH-3 FIRE-0 REACTIVITY-1 HMIS RATINGS (SCALE 0-4): HEALTH=3 FLAMMABILITY-0 REACTIVITY-1

**EMERGENCY OVERVIEW:** 

COLOR:

colorless to slightly colored

liquid PHYSICAL FORM:

50% liquid caustic- sodium hydroxide

ODOR:

odorless

SIGNAL WORD:

**DANGER** 

MAJOR HEALTH HAZARDS: CORROSIVE. CAUSES BURNS TO THE RESPIRATORY TRACT, SKIN, EYES AND GASTROINTESTINAL TRACT. CAUSES PERMANENT EYE DAMAGE. PHYSICAL HAZARDS: Mixing with water, acid or incompatible materials may cause splattering and release of heat.

ECOLOGICAL HAZARDS: This material has exhibited moderate toxicity to aquatic organisms.

PRECAUTIONARY STATEMENTS: Do not get in eyes, on skin, or on clothing. Do not breathe vapor or mist. Keep container tightly closed. Wash thoroughly after handling. Use only with adequate ventilation.

#### POTENTIAL HEALTH EFFECTS:

INHALATION:

SHORT TERM EXPOSURE: irritation (possibly severe), burns, pulmonary edema LONG TERM EXPOSURE: to our knowledge, no effects are known

SKIN CONTACT:

SHORT TERM EXPOSURE: irritation (possibly severe), burns

LONG TERM EXPOSURE: dermatitis

**EYE CONTACT:** 

SHORT TERM EXPOSURE: irritation (possibly severe), burns, eye damage,

blindness

LONG TERM EXPOSURE: visual disturbances

INGESTION:

SHORT TERM EXPOSURE: irritation (possibly severe), burns, nausea, vomiting

LONG TERM EXPOSURE: to our knowledge, no effects are known

#### **CARCINOGEN STATUS:**

OSHA: No NTP: No IARC: No

#### 3. COMPOSITION INFORMATION ON INGREDIENTS

**COMPONENT:** WATER 7732-18-5 CAS NUMBER: 48.5-94.5 PERCENTAGE:

SODIUM HYDROXIDE COMPONENT:

CAS NUMBER: 1310-73-2 5.5-51.5 PERCENTAGE:

**COMPONENT:** SODIUM CHLORIDE

CAS NUMBER: 7647-14-5 PERCENTAGE: 0 - 5.0

#### 4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. If respiration or pulse has stopped, have a trained person administer Basic Life Support (Cardio-Pulmonary Resuscitation/Automatic External Defibrillator) and CALL FOR EMERGENCY SERVICES IMMEDIATELY.

SKIN CONTACT: Immediately flush contaminated areas with water. Remove contaminated clothing, jewelry, and shoes immediately. Wash contaminated Page 2

50% liquid caustic- sodium hydroxide areas with soap and water. Thoroughly clean and dry contaminated clothing before reuse. Discard contaminated leather goods. GET MEDICAL ATTENTION IMMEDIATELY.

EYE CONTACT: Immediately flush eyes with a directed stream of water for at least 15 minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissues. Washing eyes within several seconds is essential to achieve maximum effectiveness. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION: Never give anything by mouth to an unconscious or convulsive person. If swallowed, do not induce vomiting. Give large amounts of water. If vomiting occurs spontaneously, keep airway clear. Give more water when vomiting stops. GET MEDICAL ATTENTION IMMEDIATELY.

NOTE TO PHYSICIAN: The absence of visible signs or symptoms of burns does NOT reliably exclude the presence of actual tissue damage. Probable mucosal damage may contraindicate the use of gastric lavage.

#### 5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Negligible fire hazard.

EXTINGUISHING MEDIA: Use extinguishing agents appropriate for surrounding fire.

FIRE FIGHTING: Move container from fire area if it can be done without risk. Cool containers with water. Wear NIOSH approved positive-pressure selfcontained breathing apparatus. Avoid contact with skin.

SENSITIVITY TO MECHANICAL IMPACT: Not sensitive

SENSITIVITY TO STATIC DISCHARGE: Not sensitive

FLASH POINT: not flammable

#### 6. ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE:
Wear appropriate personal protective equipment recommended in Section 8 of
the MSDS. Completely contain spilled material with dikes, sandbags, etc. Keep out of water supplies and sewers. Reprocess or reuse if possible. Shovel dry out or water supplies and sewers. Reprocess or reuse it possible. Shovel dry material into suitable container. Liquid material may be removed with a vacuum truck. Remaining, material may be diluted with water and neutralized with dilute acid. Flush spill area with water, if appropriate. This material is alkaline and may raise the pH of surface waters with low buffering capacity. Releases should be reported, if required, to appropriate agencies. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800) 424-8802 (USA) or (202)426-2675 (USA). (USA).

#### 7. HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Keep container tightly closed and properly labeled. Do not store in aluminum container or use aluminum fittings or transfer lines, as flammable hydrogen gas may be generated. Keep separated from incompatible substances (see Section 10 of the MSDS).

HANDLING: Avoid breathing vapor or mist. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. When mixing, slowly add to water to Page 3

50% liquid caustic- sodium hydroxide minimize heat generation and spattering.

#### 8. EXPPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:
SODIUM HYDROXIDE:
2 mg/m3 OSHA TWA
2 mg/m3 OSHA ceiling (vacated by 58 FR 35338, June 30, 1993)
2 mg/m3 ACGIH ceiling

VENTILATION: Provide local exhaust ventilation where dust or mist may be generated. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear safety glasses with side shields. Wear chemical safety goggles with a faceshield to protect against skin contact when appropriate. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear chemical resistant clothing and rubber boots when potential for contact with the material exists. Contaminated clothing should be removed, then discarded or laundered. Always place pants legs over boots.

GLOVES: Wear appropriate chemical resistant gloves.

PROTECTIVE MATERIAL TYPES: butyl rubber, natural rubber, neoprene, nitrile, polyvinyl chloride (PVC), Tychem (R)

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH: 10 mg/m3

RESPIRATOR: Where vapor concentration exceeds or is likely to exceed applicable exposure limits, a NIOSH approved respirator is required. If eye irritation occurs, a full face style mask should be used. When an airpurifying respirator is not adequate or when there are vapor concentrations above 10 ppm or for spills and/or emergencies, a NIOSH approved selfcontained breathing apparatus or airline respirator, with full-face piece, is required. A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: liquid clear to opaque colorless to slightly colored APPEARANCE: COLOR: ODOR: odorless 230-291 F (110-144 C) **BOILING POINT:** -26 to 59 F (-32 to 15 C) 13-135 mmHg @ 60 C FREEZING POINT: **VAPOR PRESSURE:** Not available 1.11-1.53 @ 15.6 C 9.27-12.76 lbs/gal @ 15.6 C VAPOR DENSITY: SPECIFIC GRAVITY (water=1): **DENSITY:** WATER SOLUBILITY: 100% 14.0 (7.5% solution) Not available PH: **VOLATILITY:** Not available **ODOR THRESHOLD: EVAPORATION RATE:** Not available COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available

#### 10. STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: Mixing with water, acid or incompatible materials may cause splattering and release of large amounts of heat. Will react with some Page 4

50% liquid caustic- sodium hydroxide metals forming flammable hydrogen gas. Carbon monoxide gas may form upon contact with reducing sugars or food and beverage products in enclosed spaces.

INCOMPATIBILITIES: acids, halogenated compounds, prolonged contact with aluminum, brass, bronze, copper, lead, tin, zinc or other alkali sensitive metals or alloys

HAZARDOUS DECOMPOSITION:

Thermal decomposition products: None known.

POLYMERIZATION: Will not polymerize.

#### 11. TOXICOLOGICAL INFORMATION

CAUSTIC SODA LIQUID (ALL GRADES):
TOXICITY DATA: Sodium Hydroxide: 1350 mg/kg Dermal-Rabbit L1350. The severity of the tissue damage is a function of its concentration, the length of tissue contact time, and local tissue conditions. After exposure there may he a time delay before irritation and other effects occur. This material is a strong irritant and is corrosive to the skin. eves, and mucous membranes. This material may cause severe burns and permanent damage to any tissue with which it comes into contact. Inhalation will cause severe irritation, possible burns with pulmonary edema, which may lead to pneumonitis. Skin contact with this material may cause severe irritation and corrosion of tissue. Eye contact can cause severe irritation, corrosion with possible corneal damage and blindness. Ingestion may cause irritation, corrosion/ulceration, nausea, and vomiting. In general, chronic effects are due to long-term irritation. This material may cause dermatitis on the skin, or recurrent corneal ulceration and visual disturbances. In rare cases reports have noted long-term inhalation causes bronchial inflammatory reaction or obstructive airway dysfunction.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: respiratory system (including asthma and other breathing disorders)

#### 12. ECOLOGICAL INFORMATION

**ECOTOXICITY DATA:** 

FISH TOXICITY: This material has exhibited moderate toxicity to aquatic organisms. For sodium hydroxide: 100 ppm LC50 Daphnia; 25 ppm 24 hours LC50 Brook trout; 48 ppm LC50 King salmon; 33 - 100 ppm 48 hours LC50 Shrimp; 330 - 1000 ppm 48 hours LC50 Cockle

FATE AND TRANSPORT:

BIODEGRADATION: This material is inorganic and not subject to biodegradation.

PERSISTENCE: This material is alkaline and may raise the pH of surface waters with low buffering capacity. This material is believed to exist in the disassociated state in the environment.

BIOCONCENTRATION: This material is believed not to bioaccumulate.

OTHER ECOLOGICAL INFORMATION: This material has exhibited slight toxicity to terrestrial organisms.

#### 13. DISPOSAL CONSIDERATIONS

Reuse or reprocess if possible. Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D002.

#### 14. TRANSPORT INFORMATION

#### 50% liquid caustic- sodium hydroxide

```
U.S. DOT 49 CFR 172.101:
 PROPER SHIPPING NAME: Sodium hydroxide solution
 ID NUMBER: UN1824
HAZARD CLASS OR DIVISION: 8 PACKING GROUP: H
 LABELING REQUIREMENTS: 8
DOT HAZARDOUS SUBSTANCE(S)
Sodium hydroxide 1000 lb(s) (454 kg(s))
CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
SHIPPING NAME: Sodium hydroxide solution UN NUMBER: UN 1824
CLASS: 8
PACKING GROUP/RISK GROUP: II
15. REGULATORU INFORMATION
U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):
SODIUM HYDROXIDE: 1000 LBS RQ
SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30):
Not regulated.
SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):
                  Yes
ACUTE:
CHRONIC:
                  No
FIRE:
                  No
REACTIVE:
                  No
SUDDEN RELEASE: NO
SARA TITLE III SECTION 313 (40 CFR 372.65): Not regulated.
OSHA PROCESS SAFETY (29CFR1910.119): Not regulated.
FDA: This material has Generally Recognized as Safe (GRAS) status under
specific FDA regulations. Additional information is available from the Code
of Federal Register (CFR) which is accessible on the FDA's website.
STATE REGULATIONS:
California Proposition 65: This product is not listed, but it may contain
contaminants known to the State of California to cause cancer or reproductive toxicity as listed under Proposition 65 State Drinking Water and Toxic
Enforcement Act. For additional information, contact Customer Service.
NEW JERSEY WORKER AND COMMUNITY RIGHT TO KNOW:
REPORTING REQUIREMENT
WATER 7732-18-5 48.5-94.5%
SODIUM HYDROXIDE 1310-73-2 5.5-51.5%
SODIUM CHLORIDE 7647-14-5 0-5.0%
RIGHT TO KNOW HAZARDOUS SUBSTANCE LIST:
SODIUM HYDROXIDE 1310-73-2 5.5-51.5%
SPECIAL HEALTH HAZARD SUBSTANCE LIST:
SODIUM HYDROXIDE 1310-73-2 5.5-51.5%
PENNSYLVANIA RIGHT TO KNOW:
REPORTING REQUIREMENT: WATER 7732-18-5 48.5-94.5%
SODIUM HYDROXIDE 1310-73-2 5.5-51.5%
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Page 6

SODIUM CHLORIDE 7647-14-5 0-5.0%

50% liquid caustic- sodium hydroxide

HAZARDOUS SUBSTANCE LIST:

SODIUM HYDROXIDE 1310-73-2 5.5-51.5%

**ENVIRONMENTAL HAZARDOUS SUBSTANCE LIST:** SODIUM HYDROXIDE 1310-73-2 5.5-51.5%

SPECIAL HAZARDOUS SUBSTANCE LIST: Not regulated.

**CANADIAN REGULATIONS:** 

CONTROLLED PRODUCTS REGULATIONS (CPR):
This product has been classified in accordance with the criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

WHMIS CLASSIFICATION: E.

NATIONAL INVENTORY STATUS:

U.S. INVENTORY (TSCA): All the components of this substance are listed on or are exempt from the inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CANADA INVENTORY (DSL/NDSL): All components of this product are listed on the DSL.

For Additional Information:

Contact: MSDS Coordinator -Univar USA

During business hours, Pacific Time - (425) 889-3400

NOTICE

Univar USA expressly disclaims all express or implied warranties of merchantibility and fitness for a particular purpose with respect to the product or information provided herein, and shall under no circumstances be liable for incidental or consequential damages.

Do not use ingredient information and/or ingredient percentages in this MSDS as a product specification. For product specification information refer to a Product Specification Sheet and/or a Certificate of Analysis. These can be obtained from your local Univar USA Sales Office.

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50% liquid caustic- sodium hydroxide

END OF MSDS

93% sulfuric acid

UNIVAR USA - MSDS Univar USA Inc. 17425 NE Union Hill Road Redmond, WA 98052 (425) 889-3400

For Emergency Assistance involving chemicals call - CHEMTREC (800) 424-9300

The Version Date and Number for this MSDS is: 08/17/2006 - #017

PRODUCT NAME:

SULFURIC ACID 77% - 100%

MSDS NUMBER:

DU4950CR

DATE ISSUED:

01/24/2006

**SUPERSEDES:** 

03/08/2005

ISSUED BY:

004690

\* 

Material Safety Data Sheet

WHMIS (Classification)
CLASS D-1A: Very toxic material causing immediate and serious effects
CLASS E: Corrosive material

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Trade Name

SULFURIC ACID 77% - 100%

Product Code

None

Distributed by:

Univar USA Inc. 17425 NE Union Hill Road

Redmond, WA 98052 425-889-3400

Phone Number (Transportation Emergency) Canada 1-877-ERP-ACID (377-2243) Phone Number (Transportation Emergency) U.S.A. 1-800-424-9300 CHEMTREC

Synonyms: Dihydrogen Sulfate; Oil of Vitriol; Vitriol Brown Oil Acide

sulfurique (French)

DSL (Domestic Substance List): Listed

Name / Chemical Formula:

Sulfuric Acid / H,SO4

Chemical Family:

Acid

Utilization:

Chemical industries

SECTION 2. COMPOSITION AND INFORMATION ON INGREDIENTS

Exposure Limits

ACGIH (U.S.A.) OSHA (U.S.A.)

2005 PEL - TWA

93% sulfuric acid CAS # Percentage (%) TLV-TWA (mg/m3) Name (mg(m3))Sulfuric (Acid) 7664-93-9 77 % to 100 % 0.2 (thoracic fr.) 60 Deg Technical 66 Deg Technical 1.835 Electrolyte 77.7 93.2 93.2 98 % Technical 99 % Technical 98 99 100 % Technical 100 7732-18-5 N/E Water 0-22 N/E

ACGIH: American Conference Governmental Industrial Hygienists.

OSHA: Occupational Safer and Health Administration.

N/E = Not established

Note: Sulfuric (Acid): Exposure limits may be different in other jurisdictions. NIOSH REL-TWA ( 10 hours) : I mg/m3 IDLH ; 15 mg/m3. ORAL acute (LD50) : 2 140 mg/kg (Rat) ; INHALATION (LC50, 2 hours) : 510 mg/m3(Rat) ; 320 mg/m3 (Mouse). (RTECS). Consult local authorities for acceptable exposure limits.

SECTION 3. RISK IDENTIFICATION FOR HUMAN HEALTH

Routes of Entry: Ingestion. Inhalation. Skin and eye contacts.

Carcinogenicity
Strong inorganic acid mists containing sulfuric acid (Occupational exposures)
: PROVEN (Human, Group 1, IARC) : SUSPECTED (Human, Group A2, ACGIH) ; Group
X (NTP) ; Classification not applicable to sulfuric acid and sulfuric acid
solutions.

Mutagenicity Not applicable.

Teratogenicity Not applicable.

Acute Effects Sulfuric (Acid): May be fatal if inhaled or ingested in large quantity. Liquids or acid mists: May produce tissue damage: Mucous membranes (Eyes, mouth, respiratory tract). Extremely dangerous by eyes and skin contact (Corrosive). Severe irritant for eyes: Inflammation (Redness, watering, itching). Very dangerous in case of inhalation (Mists) at high concentrations: May produce severe irritation of respiratory tract (Coughing, shortness of breath, choking).

#### SECTION 4. FIRST AID MEASURES

Eye Contact Remove contact lenses if present. Immediately flush eyes with plenty of water, holding eyelids open for at least 15 minutes. Consult a physician. Possibility of conjunctivitis, severe irritation, severe burns, permanent eye damage.

Skin Contact: Remove contaminated clothing and shoes as quickly as possible protecting your hands and body. Place under a deluge shower for 15 minutes. Flush exposed skin gently and thoroughly with running water (Pay particular attention to: Folds, crevices, creases, groin). Call a physician if irritation persists. May irritate skin, cause burns (Highly corrosive) and possibility of some scarring.

Wash contaminated clothing before reusing. While the patient is being transported to a medical facility, continue the application of cold, wet compresses. If medical treatment must be delayed, repeat the flushing with cold water or soak the affected area with cold water to help remove the last traces of sulfuric acid. Creams or ointments SHOULD NOT be applied before or Page 2

#### 93% sulfuric acid

during the washing phase of treatment.

Take precautions to avoid secondary contamination by residual acids. Remove the person to fresh air. If not breathing, give artificial respiration. Difficult breathing: Give oxygen. Get immediate medical attention. Possibility of damage to the upper respiratory tract and lung tissues. Maintain observation of the patient for delayed onset of pulmonary edema. May cause irritation to the upper respiratory tract: Coughing, sore throat, shortness of breath shortness of breath.

DO NOT INDUCE VOMITING. Conscious and alert person: Rinse mouth with water and give 1/2 to 1 cup of water or milk to dilute material. Spontaneous vomiting: Keep head below hips to prevent aspiration; Rinse mouth and give '72 to I cup of water or milk. UNCONSCIOUS person: DO NOT induce vomiting or give any liquid. Immediately obtain medical attention.

Notes to Physicians

Continued washing of the affected area with cold or iced water will be helpful in removing the last traces of sulfuric acid. Creams or ointments should not be applied before or during the washing phase of the treatment.

SECTION 5. FIRE AND EXPLOSION DATA

Flash Point:

Not available

Flammable Limits:

Not available

Auto-Ignition Temperature: Not available

temperatures.

Products of Combustion: Releases of sulfur dioxide at extremely high

Fire Hazard:

Not flammable

Explosion Hazard

Reacts with most metals, especially when dilute: Hydrogen gas release (Extremely flammable, explosive). Risk of explosion when acid combined with water organic materials or base solutions in enclosed spaces (Vacuum trucks, tanks). Follow appropriate National Fire Protection Association (NFPA) codes.

Fire Fighting (Instructions)

Use media appropriate for surrounding material. Use water spray to cool containers exposed to fire; DO NOT get water inside containers.

Evacuate personnel to a safe area. Keep personnel removed and upwind of fire. Generates heat upon addition of water, with possibility of spattering. Wear full protective clothing. Runoff from fire control may cause pollution. Neutralize run-off with lime, soda ash, etc., to prevent corrosion of metals and formation of hydrogen gas. Wear self-contained breathing apparatus if fumes or mists are present.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Review Eire and Explosion Hazards and Safety Precautions before proceeding with clean up. Stop flow if possible. Soak up small spills with dry sand,

clay or diatomaceous earth.

Dike large spills, and cautiously dilute and neutralize with lime or soda ash, and transfer to waste water treatment system. Prevent liquid from

entering sewers, waterways, or low areas. If this product is spilled and not recovered, or is recovered as a waste for

93% sulfuric acid treatment or disposal, the Reportable Quantity (U.S. DOT) is 1 000 lbs (Based on the sulfuric acid content of the solution spilled). Comply with Federal, State, and local regulations on reporting releases.

Personal Protection

Review Fire Fighting Measures and Handling (Personnel Protection) sections before proceeding with cleanup. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

SECTION 7. HANDLING AND STORAGE / ENGINEERING CONTROLS AND PERSONAL **PROTECTION** 

Handling

Do not get in eyes, on skin, or on clothing. Avoid breathing vapors or mist. Wear approved respirators if adequate ventilation cannot be provided. Wash thoroughly after handling. Ingestion or inhalation: Seek medical advice immediately and provide medical personnel with a copy of this MSDS.

Keep container tightly closed and closure up (Drum) to prevent leakage. DO NOT add water to contents while in container because of violent reaction. Keep out of sun and away from heat, sparks, and flame.
Loosen closure carefully. Relieve internal pressure when received and at least weekly thereafter. DO NOT use pressure to empty. Be sure closure is securely fastened before moving container. DO NOT wash out container or use it for other purposes; Replace closure after each withdrawal and return it with empty container.

SECTION 8. ENGINEERING CONTROLS AND PERSONAL PROTECTION

Engineering Controls Good general ventilation should be provided to keep vapor and mist concentrations below the exposure limits.

Personal Protection

Chemical splash goggles; Full-length face shield/chemical splash goggles combination; Acid-proof gauntlet gloves, apron, and boots; Long sleeve wool, acrylic, or polyester clothing; Acid proof suit and hood; Appropriate NIOSH respiratory protection.

In case of emergency or where there is a strong possibility of considerable exposure, wear a complete acid suit with hood, boots, and gloves. If acid vapor or mist are present and exposure limits may be exceeded, wear appropriate NIOSH respiratory protection.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Liquid (Oily; Clear to turbid) Physical State and Appearance odorless Odor Molecular Weight 98.08 Colorless to light grey Color pH\_(1%\_soln/water) volatility 193 deg C to 327 deg C (379 deg F to 621 deg F) (0 760 mm Hg Boiling Point 3.4 Vapor Density -35 deg C to 11 deg C (-31 deg F to 52 deg F) Melting Point Yes (Water) Dispersion < 0.3 mm Hg @ 25 deg C (77 deg F) Yes (Water) < 0.6 mm Hg 38 deg C (100 deg F) Vapor Pressure Solubility Specific Boiling Freezing GRADE Page 4

EPAHO048002296

93% sulfuric acid Point Point Gravity deg C DEG DEG deg C DEG deg F DEG dea F 60 DEG TECHNICAL 66 DEG TECHNICAL - 12 - 35 193 380 1.706 10 279 535 - 31 1.835 - 31 1.835 ELECTROLYTE 279 535 - 35 1,835 98 % TECHNICAL 99 % TECHNICAL - 2 327 621 29 1.844 1.842 310 590 40 100 % TECHNICAL 274 526 11 51 1.839

SECTION 10. STABILITY AND REACTIVITY DATA

Stability

Yes

Conditions of Instability
Reacts violently with water and organic materials with evolution of heat.

Polymerization Polymerization will not occur.

Incompatibilities
Vigorous reactions with : Water: alkaline sol

Vigorous reactions with : Water; alkaline solutions; Metals, metal powder; Carbides; Chlorates; Fulminates; nitrates; Picrates; Strong oxidizing, reducing, or combustible organic materials. Hazardous gases are evolved on contact with chemicals such as cyanides, sulfides, and carbides.

Corrosivity Yes

SECTION 11. TOXICOLOGICAL INFORMATION

Chronic Effects
Sulfuric (Acid): Overexposure to strong inorganic mists containing sulfuric acid: Possibility of laryngeal cancer (HSBD, IARC). Target organs for acute and chronic overexposure (NIOSH 90-117): Respiratory system, eyes, skin,

Mists: Possibility of irritation of the nose and throat with sneezing, sore throat or runny nose. Headache, nausea and weakness. Gross overexposure: Possibility of irritation of nose, throat, and lungs with cough, difficulty breathing or shortness of breath. Pulmonary edema with cough, wheezing, abnormal lung sounds, possibly progressing to severe shortness of breath and bluish discoloration of the skin; Symptoms may be delayed. Repeated or prolonged exposure to mists may cause: Corrosion of teeth.

Contact (Skin): Possibility of corrosion, burns or ulcers. Contact with a 1 % solution: Possibility of slight irritation with itching, redness or swelling. Repeated or prolonged exposure (Mist): Possibility of irritation with itching, burning, redness, swelling or rash.

Contact (Eye): Possibility of corrosion or ulceration (Blindness may result). Repeated or prolonged exposure (Mist): Possibility of eye irritation with tearing, pain or blurred vision.

Ingestion: Immediate effects of overexposure may include: Burns of the mouth, throat, esophagus and stomach, with severe pain, bleeding, vomiting, diarrhea and collapse of blood pressure. Damage may appear days after exposure.

Toxicity: Persons with the following pre-existing conditions warrant particular attention: Sulfuric (Acid): Laryngeal irritation. Eating, drinking and smoking must be prohibited in areas where this material is handled and processed. Wash hands and face before eating, drinking and

smoking.

#### 93% sulfuric acid

#### SECTION 12. ECOTOXICOLOGICAL INFORMATION

Ecotoxicity Aquatic toxicity: Slightly to moderately toxic.
Bluegill Sunfish (LC50; 48 hours): 49 mg/L (Tap water, 20 deg C, conditions of bioassay not specified). (HSBD).
Flounder (LC50; 48 hours): 100-330 mg/L (Aerated water, conditions of bioassay not specified). (HSBD).

Toxicity to Animals EYE: Testing indicates this material is corrosive to the eye, when tested undiluted. Testing indicates this material is a moderate eye irritant, when tested as 10 % solution.

SKIN: The concentrated compound is corrosive. Testing indicates this material is a slight skin irritant, when tested as 10 %solution.

Single and repeated exposure caused : Irritation of the respiratory tract ; Corrosion of the respiratory tract ; Lung damage ; Labored breathing Altered respiratory rate ; Pulmonary edema. Repeated exposure caused : Altered red blood cell count.

Biodegradation Products Not available

Biodegradation Products (Toxicity) Not applicable

Remarks on Environment Due to the product's composition, particular attention must be taken for transportation and storage. Protect from rain because the run-off water will become acidic and may be harmful to flora and fauna.

BOD5 and COD Not available

SECTION 13. DISPOSAL ARRANGEMENTS

Waste Disposal Cleaned-up material may be an RCRA Hazardous Waste on disposal due to the corrosivity characteristic. DO NOT flush to surface water or sanitary sewer system. Comply with Federal, State, and local regulations. If approved. neutralize and transfer to waste treatment system.

SECTION 14. TRANSPORT INFORMATION

**TDG** CLASS 8 Corrosives UN1830 SULFURIC ACID PG II PIN Special Provisions (Transport) None

SECTION 15 OTHER REGULATIONS

Other Regulations

DOT (U.S.A.)/IMO Proper Shipping Name Hazard Class SULFURIC ACID 1830 UN NO. DOT/IMO Label **CORROSIVE** Packing Group 1000 lbs (454 kg) Reportable Quantity Shipping Containers Tank Cars, Tank Trucks, Vessel EU (Directive 67/548/EEC): Sulfuric (Acid): Annex I Index number: 016-020-00-8; EU Consolidated Inventories: EC Number 231639

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) : On the Domestic Substances Page 6

93% sulfuric acid List (DSL); Acceptable for use under the provisions of CEPA.

CERCLA Section 103 Hazardous substances (40 CFR 302.4); SARA Section 302 Extremely Hazardous Substances (40 CFR 355): Yes; SARA Section 313, Toxic Chemicals (40 CFR 372.65); US: TSCA Inventory: Listed: Sulfuric (Acid) (Final RQ): I 000 pounds (454 kg)

Sulfuric Acid is subject to reporting requirements of Section 313, Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), 40 CFR Part 372.

Certain companies must report emissions of Sulfuric Acid as required under The Comprehensive Environmental Response. Compensation and Liability Act of 1980 (CERCLA), 40 CFR Part 302

For more information call the SARA Hotline 800-424-9346.

Strong Inorganic Acid Mists Containing Sulfuric Acid: Chemical listed effective March 14, 2003 to the State of California, Proposal 65. Sulfuric Acid is a Class B Drug Precursor under Health Canada's Controlled Drugs and Substances Act and Precursor Control Regulations.

U.S. FDA Food Bioterrorism Regulations : These regulations apply to Sulfuric Acid when being distributed, stored or used for Food or Food Processing.

Classifications HCS (U.S.A.)
Dangerous may cause cancer
Corrosive liquid

Classifications DSCL (EEC)
R35- Causes severe burns
R8- Contact with combustible material may cause fire
S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S30- Never add water to this product
S36/37/39- Wear suitable protective clothing, gloves and eye/face protection
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

NFPA National Fire Protection Association) (U.S.A.) Reactivity 2 Health 3 Special Hazard ACID

NPCA- HMIS Rating Reactivity 2 Health 3

ECTION 16. OTHER INFORMATION

References
- TLVs and BEIs (2005). Based on the Documentation of the Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices. ACGIH, Cincinnati, OH http://www.acgih.org
- CCOHS (2005) - Canadian Centre for Occupational Health and Safety http://www.ccohs.ca/
- CSST (2005) - Commission de Ia Sante et de Ia Securite du Travail (Quebec). Service du repertoire toxicologique - http://www.reptox.csst.qc.ca/
- HSBD (2005) - Hazardous Substances Data Bank. TOXNET Network of databases on toxicology, hazardous chemicals, and environmental health. NLM Databases & Electronic Resources, U.S. National Library of Medicine, NHI, 8600 Rockville Pike, Bethesda, MD 20894 - http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB - IARC - Monographs on the Evaluation of Carcinogenic Risks to Humans (collection) - http://www-cie.iarc.fr/ - Merck Index (1999). Merck & CO., Inc, 12th edition - NIOSH U.S. (2005) - Pocket Guide to Chemical Hazards

#### 93% sulfuric acid

http://www.cdc.gov/niosh/npg/

- North American Emergency Response Guidebook Documents (2004), Developed by the U.S. Department of Transportation, Transport Canada, and the Secretariat of Communications and Transportation of Mexico

- Patty's Industrial Hygiene and Toxicology, 3rd Revised Edition

- Reglement sur les produits controles (Canada) - RTECS ( 2005). Registry of Toxic Effects of Chemical Substances, NIOSH, CDC - Toxicologie industrielle & intoxication professionnelle, 3e edition,

Lauwerys

Glossary

: Commission de la Sante et de la Securite du Travail (Quebec). CSST

**HSBD** : Hazardous Substances Data Bank.

TARC

: International Agency for Research on Cancer.
: National Institute of Occupational Safety and Health.
: U.S. National Toxicology Program. NIOSH

NTP

**RTECS** : Registry of Toxic Effects of Chemical Substances

Because of its corrosive characteristics and inherent hazards, Sulfuric Acid should not be used in sewer or drain cleaners or any similar application; regardless of whether they are formulated for residential, commercial or industrial use. Vendor will not knowingly sell sulfuric acid to individuals or companies who repackage the product for sale as sewer or drain cleaners, any other similar use. or any other similar use.

For Additional Information:

Contact: MSDS Coordinator - Univar USA

During business hours, Pacific Time - (425) 889-3400

NOTICE

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END OF MSDS

UNIVAR USA - MSDS Univar USA Inc. 17425 NE Union Hill Road Redmond, WA 98052 (425) 889-3400

For Emergency Assistance involving chemicals call - CHEMTREC (800) 424-9300

The Version Date and Number for this MSDS is : 12/07/2005 - #007

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PRODUCT IDENTIFICATION

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

PRODUCT NAME:

ISOPROPYL ALCOHOL / ISOPROPANOL

MSDS NUMBER:

EZ060041

DATE ISSUED:

10/20/03

**SUPERCEDES:** 

10/16/02

ISSUED BY:

009292

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name

Isopropanol

Distributed by: Univar USA Inc. 6100 Carillon Point

Kirkland, WA 98033 425-889-3400

**OSHA Status** 

Chemical Name Synonym(s) Molecular Formula Molecular Weight Product Use

2-propanol 900212

C3H80 60.09 solvent hazardous

For emergency transportation information, call CHEMTREC at 800-424-9300

2. COMPOSITION INFORMATION ON INGREDIENTS

(Typical composition is given, and it may vary. A certificate of analysis can be provided, if available.)

weight %

Component

CAS Registry No.

10Ō%

isopropyl alcohol

67-63-0

3. HAZARDS IDENTIFICATION

WARNING!

FLAMMABLE LIQUID AND VAPOR

CAUSES EYE IRRITATION
HIGH VAPOR CONCENTRATIONS MAY CAUSE DROWSINESS AND IRRITATION OF THE EYES OR RESPIRATORY TRACT

PROLONGED OR REPEATED SKIN CONTACT MAY CAUSE DRYING, CRACKING, OR IRRITATION FORMS EXPLOSIVE PEROXIDES

HMIS(R) Hazard Ratings: Health - 2, Flammability -3, Chemical Reactivity - 1 Page 1

99% Isopropyl Alcohol 1, Flammability 3, Reactivity - 0 NFPA Hazard Ratings: Health

HMIS rating involves data interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.

#### 4. FIRST-AID MEASURES

Inhalation:

Move to fresh air. Treat symptomatically. Get medical attention if symptoms persist.

Eyes:

Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.

Skin:

wash with soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing before reuse. Thoroughly clean shoes before reuse.

Ingestion:

Seek medical advice.

#### 5. FIRE FIGHTING MEASURES

Extinguishing Media: water spray. dry chemical, carbon dioxide. alcohol foam

Special Fire-Fighting Procedures:

wear self-contained breathing apparatus and protective clothing.

Use water spray to keep fire-exposed containers cool. Water may be ineffective in fighting the lire. Fight fire from a protected (oration.

**Hazardous Combustion Products:** carbon dioxide, carbon monoxide

Unusual Fire and Explosion Hazards: Vapors may cause a flash fire or ignite explosively. Vapors may travel considerable distance to a source of ignition and flash back. Prevent buildup of vapors or gases to explosive concentrations. Forms explosive peroxides which may be shock sensitive.

Sensitivity to Static Discharge: Material may accumulate a static charge which could act as an ignition source.

#### 6. ACCIDENTAL RELEASE MEASURES

Use personal protective equipment. Eliminate all ignition sources. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste.

For Large Spills:

Use water spray to disperse vapors and dilute spill to a nonflammable mixture.

Prevent runoff from entering drains, sewers, or streams.

#### 7. HANDLING AND STORAGE

Personal Precautionary Measures:

Avoid contact with eyes and prolonged or repeated contact with skin. Avoid breathing high vapor concentrations. Use only with adequate ventilation. wash thoroughly after handling.

Prevention of Fire and Explosion: Keep material from heat, light, sparks and flame. Keep from contact with oxidizing materials. Use only with adequate ventilation. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of flammable liquids. Do not expose to air. After opening, purge container with nitrogen before reclosing. Periodically test for peroxide formation on long-term storage. If peroxide formation is suspected, do not open or move container. Do not allow to evaporate to near dryness. Distill with caution. Addition of water or appropriate reducing materials will lessen peroxide formation.

Storage:

Keep container tightly closed and in a well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Country specific exposure limits have not been established or are not applicable unless listed below.

ISOPROPYL ALCOHOL US. NIOSH: Pocket Guide to Chemical Hazards Recommended exposure limit (REL): 400 ppm, 980 mg/m3
US. NIOSH: Pocket Guide to Chemical Hazards
Short Term Exposure Limit (STEL): 500 ppm, 1,225 mg/m3
US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) PEL: 400 ppm, 980 mg/m3
US. ACGIH Notice of Intended Changes (NIC) to Threshold Limit Values
Time Weighted Average (TWA): 200 ppm, US. ACGIH Notice of Intended Changes (NIC) to Threshold Limit Values Short Term Exposure Limit (STEL): 400 ppm, ISOPROPANOL (ISOPROPYL ALCOHOL)
US. ACGIH Notice of Intended Changes (NIC) to Threshold Limit Values
Time Weighted Average (TWA): 200 ppm,
US. ACGIH Notice of Intended Changes (NIC) to Threshold Limit Values Short Term Exposure Limit (STEL): 400 ppm, ISOPROPYL ALCOHOL

US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants

Time Weighted Average (TWA) Permissible Exposure Limit (PEL): 400 ppm, 980 mg/m3

US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants

Short Term Exposure Limit (STEL): 500 ppm, 1,225 mg/m3 **ISOPROPANOL** 

US. ACGIH Threshold Limit Values
Time Weighted Average (TWA): 200 ppm,
US. ACGIH Threshold Limit Values

Short Term Exposure Limit (STEL): 400 ppm,

Ventilation:

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Respiratory Protection: If engineering controls do not maintain airborne concentrations below Page 3

recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA Standard 63 FR 1152, January 8, 1998. Respirator type: Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.

Eye Protection:

Wear safety glasses with side shields (or goggles). Wear a full-face respirator, if needed.

Skin Protection:

For operations where prolonged or repeated skin contact may occur, chemical-resistant gloves should be worn. Contact health and safety professional or manufacturer for specific information.

Recommended Decontamination Facilities: eye bath, washing facilities

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form: liquid Color: colorless Odor: alcohol 22 ppm 0.786 (20 C) 20 C; 43.3 mbar Odor Threshold: Specific Gravity: Vapor Pressure: Vapor Density: 2.1 -90 C Melting Point: Boiling Point: 82 C 1.7 (n-butyl acetate = 1 ) 2.38 mPa.s (20 C) , **Evaporation Rate:** Viscosity: Solubility in Water: complete Octanol/Water Partition Coefficient: P: 1.4; log P: Flash Point: 13 C (Tag closed cup) Autoignition Temperature: 432 C (ASTM) D2155) P: 1.4; log P: 0.14 Thermal Decomposition Temperature: (HPDTA) No exotherm to boiling (at 150 psig)

#### 10. STABILITY AND REACTIVITY

Stability:

Stable. Forms explosive peroxides on concentration.

Incompatibility:

Material reacts violently with strong oxidizing agents

Hazardous Polymerization:

Will not occur.

#### 11. TOXICOLOGICAL INFORMATION

Skin:

This material has a low potential to cause allergic skin reactions; however, cases of human skin sensitization have been reported.

Acute toxicity data, if available, are listed below. Additional toxicity data may be available on request.

Oral LD-50:(rat) 5,800 mg/kg Oral LD-50:(rabbit) 7,900 mg/kg Oral LD-50:(dog) 6,200 mg/kg

Inhalation LC-50: (rat) 8 h: 12000 ppm Dermal LD-50: (rabbit) 16.4 ml/kg Skin Irritation (rabbit) slight Eye Irritation (rabbit) moderate

#### 12. ECOLOGICAL INFORMATION

Acute toxicity data, if available, are listed below. Additional toxicity data may be available on request.

Oxygen Demand Data:

BOD-5: 1,190 - 1,720 mg/g BOD-20: 1,680 mg/g

COD: 2,230 mg/gThBOD: 2,400 mg/g

Acute Aquatic Effects Data: 96 h LC-50 (fathead minnow): > 1000 ul/l 48 h LC-50 (golden orfe): 8970 - 9280 mg/l 96 h LC-50 (daphnid): > 1000 ul/l

#### 13. DISPOSAL CONSIDERATIONS

Discharge, treatment, or disposal may be subject to national, state, or local laws. Mix with compatible chemical which is less flammable and incinerate. Since emptied containers retain product residue, follow label warnings even after container is emptied. Residual vapors may explode on ignition; do not cut, drill, grind, or weld on or near this container.

#### 14. TRANSPORT INFORMATION

Marine pollutant components: none unless listed below

DOT (USA): Class 3 Packing group II ICAO Status: Class 3 Packing group II IMDG Status: Class 3 Packing group II

#### 15. REGULATORY INFORMATION

WHMIS (Canada) Status: controlled WHMIS (Canada) Hazard Classification: B/2, D/2/B

SARA 311-312 Hazard Classification(s): immediate (acute) health hazard

fire hazard

SARA 313: none, unless listed below

Carcinogenicity Classification (components present at 0.1% or more): none, unless listed below

TSCA (US Toxic Substances Control Act): This product is listed on the TSCA inventory. Any impurities present in this product are exempt from listing.

DSL (Canadian Domestic Substances List) and CEPA (Canadian Environmental Protection Act): This product is listed on the DSL. Any impurities present in this product are exempt from listing.

EINECS (European Inventory of Existing Commercial Chemical Substances): This product is listed on EINECS.

AICS / NICNAS (Australian Inventory of Chemical Substances and National Industrial Chemicals Notification and Assessment Scheme): This product is Page 5

99% Isopropyl Alcohol listed on AICS or otherwise complies with NICNAS.

MITI (Japanese Handbook of Existing and New Chemical Substances): This product is listed in the Handbook or has been approved in Japan by new substance notification.

ECL (Korean Toxic Substances Control Act): This product is listed on the Korean inventory or otherwise complies with the Korean Toxic Substances Control Act.

#### 16. OTHER INFORMATION

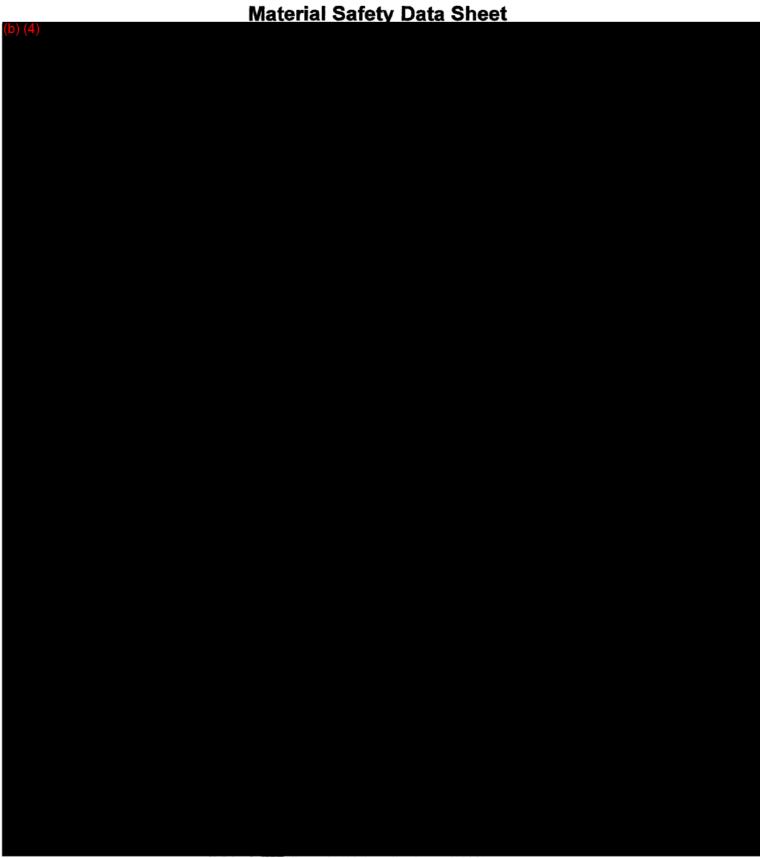
For Additional Information: Contact: MSDS Coordinator - Univar USA During business hours, Pacific Time - (425) 889-3400

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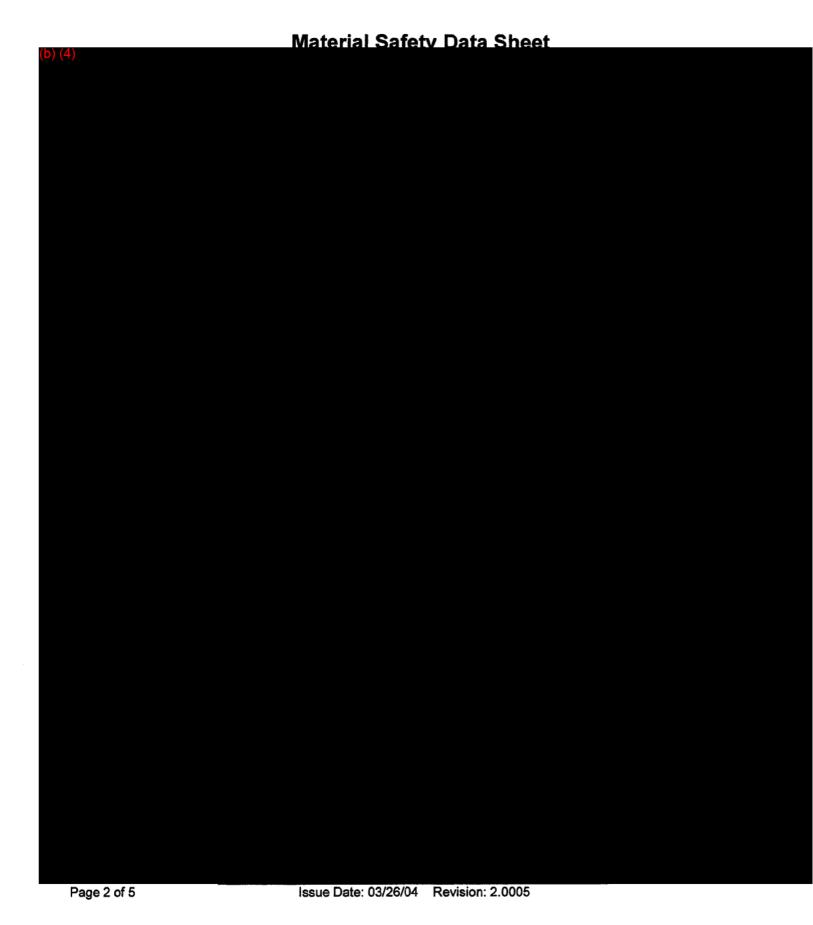
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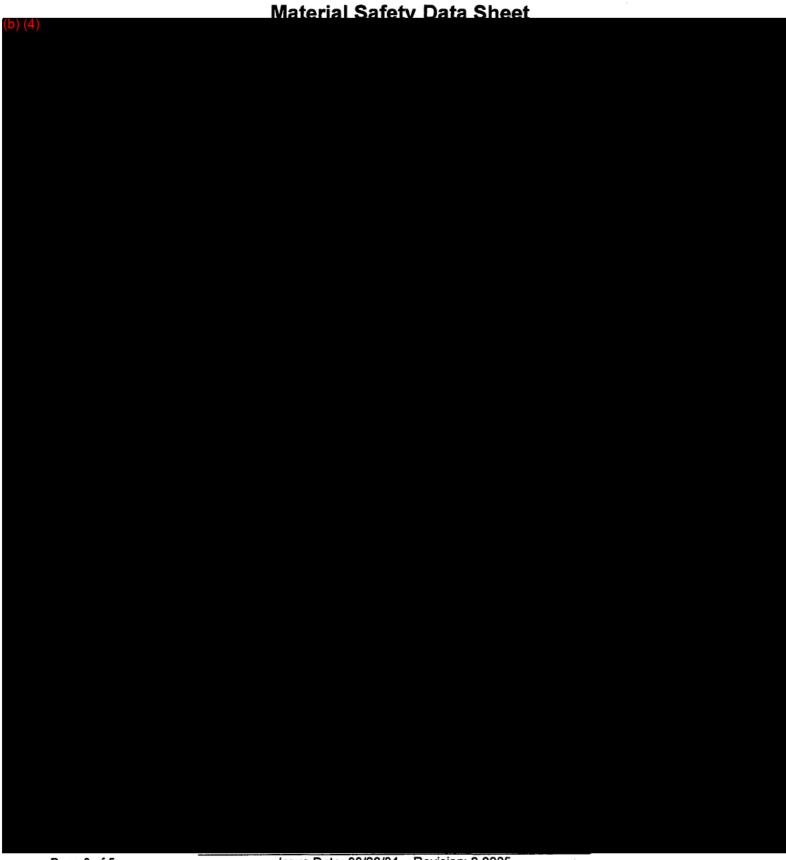
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Page 1 of 5

Issue Date: 03/26/04 Revision: 2.0005



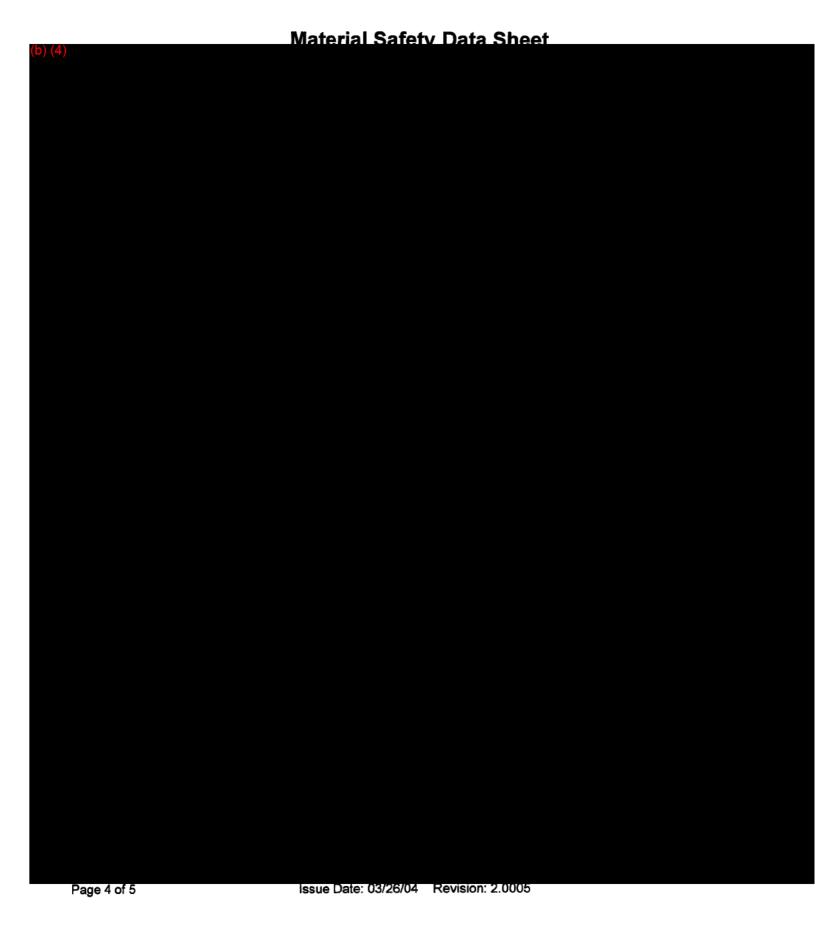
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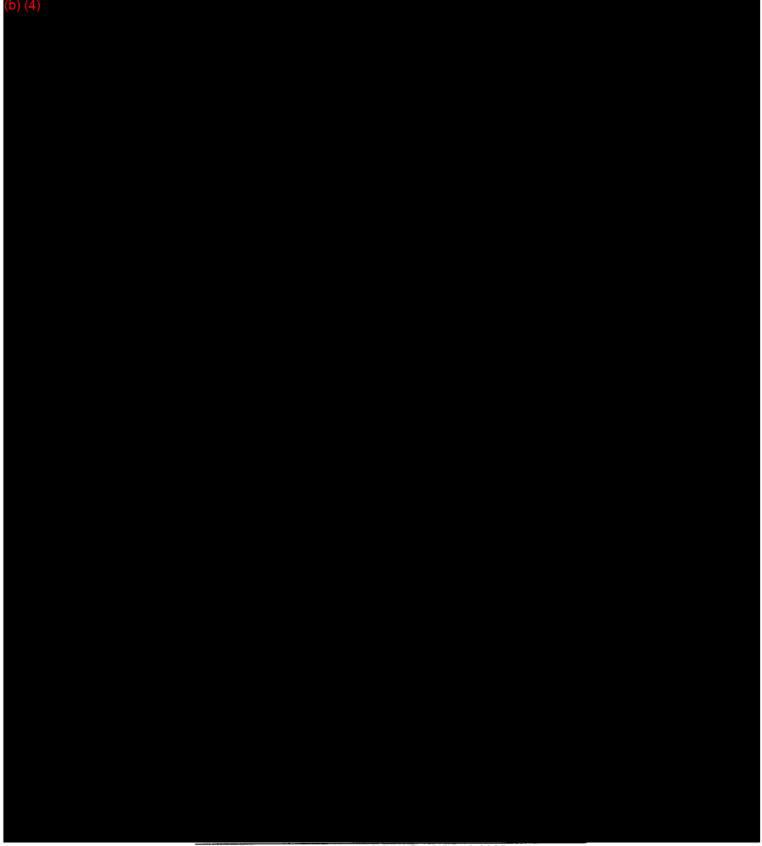


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Page 3 of 5

Issue Date: 03/26/04 Revision: 2.0005









### MATERIAL SAFETY DATA SHEET

Section 1. Chemical Product and Company Identification

Product Name: ChemTreat FO-120

Manufacturer's Name: ChemTreat, Inc. Emergency Telephone Number: (800) 424-9300

Address (Corporate Headquarters) 4461 Cox Road, Glen Allen, VA 23060

Telephone Number for Information: (800) 648-4579 Date of MSDS: April 11, 2003

Section 2. Composition/Hazardous Ingredients

Component CAS Registry # Wt. %

This product contains **no reportable hazardous ingredients** as defined in OSHA Hazard Communication Standard 29 CFR 1910.1200, or SARA Title III.

Section 3. Hazards Identification

Emergency Overview: Milky white opaque liquid; mild odor.

Potential Health Effects: **Eyes** - will cause irritation

Skin - prolonged or repeated contact may cause irritation and dermatitis

Inhalation - may cause coughing and/or dizziness

Ingestion: may cause dizziness, headache, and/or nausea

Chronic Effects/Carcinogenicity: This product does not contain any substances that are considered by OSHA, NTP, IARC, or ACGIH to be probable or suspected human carcinogens.

### Section 4. First Aid Measures

**Inhalation:** Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Get immediate medical attention.

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, holding eyelids apart to ensure flushing of entire eye surface. Get immediate medical attention if irritation develops or persists.

**Skin:** Wash thoroughly with soap & water. Remove contaminated clothing. Thoroughly wash clothing before reuse. Get medical attention if irritation develops or persists.

**Ingestion:** Do not induce vomiting. Give victim large quantities of water. Get immediate medical attention. Never give anything by mouth to an unconscious person. Get immediate medical attention.

ChemTreat, Inc. FO-120 Page 1

## Section 5. Fire Fighting Measures

Flammable Properties: Flash point = >200 F (PMCC)

Suitable Extinguishing Media: Carbon dioxide, dry chemical, aqueous foam, or water fog

Fire & Explosion Hazards: None known

Protective Equipment: If product is involved in a fire, wear full protective clothing including a positive-

pressure, NIOSH-approved, self-contained breathing apparatus.

### Section 6. Accidental Release Measures

**Small Spill:** Construct temporary dikes of dirt, sand, or any readily available inert material to prevent spreading of the material. Wearing appropriate personal protective equipment, move the leaking container to a containment area or plug the leak. Absorb on inert material, then shovel up and dispose of according to local, state, federal regulations.

**Large Spill:** Construct temporary dikes of dirt, sand, or any readily available inert material to prevent spreading of the product. Wearing appropriate personal protective equipment, close or cap valves and/or block or plug hold in leaking container and transfer to another container for proper disposal.

## Section 7. Handling and Storage

Do not get in eyes, or on skin and clothing. Wash thoroughly after handling. Avoid breathing mists. Do not ingest. Product may freeze at low temperatures. Store at ambient temperatures. Keep container securely closed when not in use. Label precautions also apply to empty container. Recondition or dispose of empty containers in accordance with government regulations. For industrial use only.

## Section 8. Exposure Controls/Personal Protection

Use protective equipment in accordance with 29 CFR 1910 Subpart I. Good general ventilation should be sufficient to control airborne levels. Wear chemical splash goggles or safety glasses with full-face shield. Wear rubber gloves. Wash them after each use and replace as necessary. If conditions warrant, wear impervious protective clothing such as boots, aprons, and coveralls to prevent skin contact. Maintain eyewash fountain and quick-drench facilities in work area.

# Section 9. Physical and Chemical Properties

Appearance: Opaque, milky white

Boiling Point: ~ 212 F

Evaporation Rate: >1

Freezing Point: 37 F Melting Point: N/A

Molecular Weight: N/D

Odor: Mild pH: N/A

Physical state: Liquid

Solubility in Water: Dispersible

Specific Gravity: ~0.992 Vapor Density: N/D Vapor Pressure: N/D

Viscosity: 80 - 300

% VOCs:

# Section 10. Stability and Reactivity

ChemTreat, Inc. FO-120 Page 2

Chemical Stability: Stable at normal temperature and pressure.

Incompatibility: Strong oxidizing agents; avoid extreme heat and open flame.

Hazardous Decomposition Products: Carbon monoxide; carbon dioxide; soot.

Hazardous Polymerization: Will not occur.

## Section 11. Toxicological Information

This product does not contain any substances that are considered by OSHA, NTP, IARC, or ACGIH to be probable or suspected human carcinogens. No additional data found for this product.

## Section 12. Ecological Information

Fathead minnow 96 hour LC50 = 181.841 mg/L; Ceriodaphnia dubia 48 hour LC50 = 76.188 mg/L

## Section 13. Disposal Considerations

Dispose of material in an approved chemical waste landfill or incinerate in accordance with applicable local, state and federal regulations. Since emptied containers retain residue, all labeled hazard precautions must be observed.

## Section 14. Transport Information (not meant to be all inclusive)

D.O.T. Shipping Name: Not D.O.T. Regulated

## Section 15. Regulatory Information (Not meant to be all inclusive - selected regulation represented)

TSCA Status: All ingredients listed CERCLA Reportable Quantity: None

SARA Title III:

Section 302 Extremely Hazardous Substances: None

Section 313 Toxic Chemicals: None CALIFORNIA PROPOSITION 65: None

# Section 16. Other Information

Hazard (NFPA) Rating:

Health 1

Flammability 0

Reactivity 1

SARA Hazard Categories - Section 311/312

Acute - Yes

Chronic - No

Fire - No

Reactive - No

Sudden Release - No

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Director, Regulatory Affairs

ChemTreat, Inc. FO-120 Page 3





### MATERIAL SAFETY DATA SHEET

# Section 1. Chemical Product and Company Identification

Product Name:

**ChemTreat P-817E** 

Manufacturer's Name:

ChemTreat, Inc.

Emergency Telephone Number:

(800) 424-9300

Address (Corporate Headquarters)

4461 Cox Road, Glen Allen, VA 23060

Telephone Number for Information:

(800) 648-4579

Date of MSDS:

April 15, 2003

## Section 2. Composition/Hazardous Ingredients

Component

CAS Registry #

Wt. %

This product is not hazardous as defined in 29 CFR 1910.1200.

## Section 3. Hazards Identification

Emergency Overview: Milky viscous liquid; aliphatic odor; eye and skin irritant; not flammable. Spills produce extremely slippery surfaces.

Potential Health Effects:

Eyes - Causes eye irritation.

Skin - Causes skin irritation.

Inhalation - Not expected to be harmful if inhaled.

**Ingestion:** No information available.

Chronic Effects/Carcinogenicity: No information available on significant long-term effects.

### Section 4. First Aid Measures

**Inhalation:** Remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

**Eyes:** Immediately flush eyes with plenty of water for at least 15 minutes, holding eyelids apart to ensure flushing of entire eye surface. If symptoms develop or persist, get medical attention.

**Skin:** Flush immediately with soap and water for at least 15 minutes. Remove contaminated clothing and do not reuse without laundering. If symptoms develop or persist, get medical attention.

**Ingestion:** This product is not considered toxic by ingestion.

## Section 5. Fire Fighting Measures

Flammable Properties: Not flammable

Suitable Extinguishing Media: Use water, water spray, foam, dry powder, or carbon dioxide.

ChemTreat, Inc. P-817E Page 1 Fire & Explosion Hazards: Spills product extremely slippery surfaces.

Protective Equipment: If product is involved in a fire, wear full protective clothing including a positive-pressure, NIOSH-approved, self-contained breathing apparatus.

#### Section 6. Accidental Release Measures

**Small Spill:** Construct temporary dikes of dirt, sand, or any readily available inert material to prevent spreading of the material. Wearing appropriate personal protective equipment, move the leaking container to a containment area or plug the leak. Absorb on inert material, then shovel up and dispose of according to local, state, federal regulations.

Large Spill: Construct temporary dikes of dirt, sand, or any readily available inert material to prevent spreading of the product. Wearing appropriate personal protective equipment, close or cap valves and/or block or plug hold in leaking container and transfer to another container for proper disposal.

## Section 7. Handling and Storage

Does not meet the criteria of a hazardous waste as described in 40 CFR 261. Do not get in eyes, or on skin and clothing. Wash thoroughly after handling. Avoid breathing mists. Do not ingest. Store at ambient temperatures. Keep container securely closed when not in use. Label precautions also apply to empty container. Recondition or dispose of empty containers in accordance with government regulations.

## Section 8. Exposure Controls/Personal Protection

Use protective equipment in accordance with 29 CFR 1910 Subpart I. Local exhaust ventilation should be sufficient to control airborne levels. Wear chemical splash goggles or safety glasses with full-face shield. Wear rubber gloves. Wash them after each use and replace as necessary. If conditions warrant, wear impervious protective clothing such as boots, aprons, and coveralls to prevent skin contact. Maintain eyewash fountain and quick-drench facilities in work area.

## Section 9. Physical and Chemical Properties

Appearance: Milky white

Boiling Point: N/D Evaporation Rate: N/D

Freezing Point: 0 F

Melting Point: N/A

Molecular Weight: N/D

Odor: Aliphatic pH: N/A

Physical state: Liquid emulsion

Solubility in Water: N/D Specific Gravity: ~ 1.072

Vapor Density: N/D

Vapor Pressure: 0.002

Viscosity: N/D % Volatile: N/D

## Section 10. Stability and Reactivity

Chemical Stability: Stable

Incompatibility: Oxidizing agents

Hazardous Decomposition Products: Oxides of carbon and of nitrogen.

ChemTreat, Inc. P-817E Page 2 Hazardous Polymerization: Will not occur

# Section 11. Toxicological Information

Oral LD50 (rat) = > 5000 mg/kg

## Section 12. Ecological Information

Fathead Minnow: 96h LC50 = > 1000 mg/l; Algae: 72h EC50 = > 1000 mg/l; Daphnia: 48h LC50 = 15 mg/l

## Section 13. Disposal Considerations

Dispose of in accordance with local, state, and federal regulations. Rinse empty containers with water and use the rinse water to prepare the working solution. Can be landfilled or incinerated when in compliance with local regulations.

## Section 14. Transport Information (not meant to be all inclusive)

D.O.T. Shipping Name: Not D.O.T. Regulated

## Section 15. Regulatory Information (Not meant to be all inclusive - selected regulation represented)

TSCA Status: All ingredients listed CERCLA Reportable Quantity: None

**SARA Title III:** 

Section 302 Extremely Hazardous Substances: None

Section 313 Toxic Chemicals: None

CALIFORNIA PROPOSITION 65: This product contains acrylamide, known to the State of California to cause cancer.

## Section 16. Other Information

Hazard (NFPA) Rating:

Health 1 Flammability 1

Reactivity 0

SARA Hazard Categories - Section 311/312

Acute - Yes

Chronic - No

Fire - No

Reactive - No

Sudden Release - No

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Director, Regulatory Affairs

Timothy H. Reid

ChemTreat, Inc.

P-817E





### MATERIAL SAFETY DATA SHEET

Section 1. Chemical Product and Company Identification

Product Name: ChemTreat P-841L Manufacturer's Name: ChemTreat, Inc.

Emergency Telephone Number: (800) 424-9300

Address (Corporate Headquarters) 4461 Cox Road, Glen Allen, VA 23060

Telephone Number for Information: (800) 648-4579 Date of MSDS: June 25, 2003

## Section 2. Composition/Hazardous Ingredients

Component	CAS Registry #	Wt. %
Hydrochloric acid	7647-01-0	<1
Formaldehyde	50-00-0	< 0.1
Tannins compound	104376-81-0	30 - 35

## Section 3. Hazards Identification

Emergency Overview: Dark brown opaque liquid; mild odor.

Potential Health Effects:

Eyes - May cause moderate irritation, especially after prolonged or repeated contact.

**Skin** - May cause moderate skin irritation, especially after prolonged or repeated contact.

**Inhalation** -May cause irritation of the respiratory tract.

**Ingestion:** May cause moderate irritation to the gastrointestinal tract.

Chronic Effects/Carcinogenicity: Formaldehyde, a component of this product, has been determined to be a possible cancer hazard based on tests with laboratory animals. Considered a suspected human carcinogen by ACGIH and OSHA. Repeated exposure should be avoided.

#### Section 4. First Aid Measures

**Inhalation:** Move to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

Eyes: Immediately flush eyes for 15 minutes with plenty of water. Call a physician.

**Skin:** Wash off immediately with soap and plenty of water. Remove and wash contaminated clothing before reuse. In case of persistent skin irritation, consult a physician.

Ingestion: Do NOT induce vomiting. If conscious, give plenty of water. Seek medical attention.

ChemTreat, Inc. P-841L Page 1

## Section 5. Fire Fighting Measures

Flammable Properties: Flashpoint = > 200 F

Suitable Extinguishing Media: Use water, water spray, foam, carbon dioxide, and dry powder.

Fire & Explosion Hazards: Product may become combustible following evaporation of non-combustible components.

Protective Equipment: If product is involved in a fire, wear full protective clothing including a positive-pressure, NIOSH-approved, self-contained breathing apparatus.

## Section 6. Accidental Release Measures

**Small Spill:** Construct temporary dikes of dirt, sand, or any readily available inert material to prevent spreading of the material. Wearing appropriate personal protective equipment, move the leaking container to a containment area or plug the leak. Absorb on inert material, then shovel up and dispose of according to local, state, federal regulations.

**Large Spill:** Construct temporary dikes of dirt, sand, or any readily available inert material to prevent spreading of the product. Wearing appropriate personal protective equipment, close or cap valves and/or block or plug hold in leaking container and transfer to another container for proper disposal.

# Section 7. Handling and Storage

When preparing the working solution, ensure there is adequate ventilation. Do not store in mild steel, stainless steel, aluminum, or brass containers. Freezing will affect the physical condition and may damage the material. Do not get in eyes, or on skin and clothing. Wash thoroughly after handling. Avoid breathing mists. Do not ingest. Keep away from heat and open flame. Store at ambient temperatures. Keep container securely closed when not in use. Label precautions also apply to empty container. Recondition or dispose of empty containers in accordance with government regulations.

## Section 8. Exposure Controls/Personal Protection

Use protective equipment in accordance with 29 CFR 1910 Subpart I. Good general ventilation should be sufficient to control airborne levels. Wear chemical splash goggles or safety glasses with full-face shield. Do not wear contact lenses. Wear rubber gloves. Wash them after each use and replace as necessary. If conditions warrant, wear impervious protective clothing such as boots, aprons, and coveralls to prevent skin contact. Maintain eyewash fountain and quick-drench facilities in work area.

## Section 9. Physical and Chemical Properties

Appearance: Dark brown, opaque

Boiling Point: 212 F
Evaporation Rate: N/D
Freezing Point: 41 F
Melting Point: N/A

Molecular Weight: N/D

Odor: Mild pH: ~ 1.6

Physical state: Liquid

Solubility in Water: Complete

Specific Gravity: ~ 1.127 Vapor Density: As water Vapor Pressure: N/D

Viscosity: N/D % Volatile: 67

ChemTreat, Inc. P-841L Page 2

# Section 10. Stability and Reactivity

Chemical Stability: Stable at normal temperatures and pressures

Incompatibility: Bases, oxidizing agents, zinc, aluminum, copper, mild steel, brass, stainless steel, or galvanized metals.

Hazardous Decomposition Products: May produce oxides of carbon, oxides of nitrogen, and

Hazardous Polymerization: Will not occur

## Section 11. Toxicological Information

Formaldehyde, a component of this product, has been found to cause cancer.

## Section 12. Ecological Information

Rainbow Trout 96h LC50 = 168 mg/1; Daphnia 24h LC50 = 52 mg/1

## Section 13. Disposal Considerations

Rinse empty containers with water and use the rinse water to prepare the working solution. Can be landfilled or incinerated when in compliance with local regulations.

# Section 14. Transport Information (not meant to be all inclusive)

Not D.O.T. Regulated

## Section 15. Regulatory Information (Not meant to be all inclusive - selected regulation represented)

TSCA Status: All ingredients listed

CERCLA Reportable Quantity: 100,000 lbs. of product, if spilled

SARA Title III:

Section 302 Extremely Hazardous Substances: None

Section 313 Toxic Chemicals: None

CALIFORNIA PROPOSITION 65: This product contains a chemical known to the State of California to cause cancer: Formaldehyde.

# Section 16. Other Information

Hazard (NFPA) Rating:

Health 2 Flammability 0 Reactivity 1

SARA Hazard Categories – Section 311/312

Acute - Yes

Chronic - No

Fire - No

Reactive - No

Sudden Release - No

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Timothy N. Reid Director, Regulatory Affairs

ChemTreat, Inc.

P-841L





### MATERIAL SAFETY DATA SHEET

## Section 1. Chemical Product and Company Identification

Product Name: ChemTreat P-895L

Manufacturer's Name: ChemTreat, Inc.

Emergency Telephone Number: (800) 424-9300

Address (Corporate Headquarters) 4461 Cox Road, Glen Allen, VA 23060

Telephone Number for Information: (800) 648-4579
Date of MSDS: May 13, 2003

## Section 2. Composition/Hazardous Ingredients

Component	CAS Registry #	Wt. %
Sodium sulfate	7757-82-6	15 - 30
Sodium chloride	7647-14-5	1 - 5
Starch, (2-hydroxypropyl) trimethylammonium		
Chloride ether	56780-58-6	15 - 30

## Section 3. Hazards Identification

Emergency Overview: Tan, viscous liquid; mild odor. Not flammable.

Potential Health Effects: **Eyes** - May be irritating.

Skin - May cause skin irritation.

Inhalation - Inhalation of mist may cause irritation of respiratory tract.

Ingestion: May cause irritation.

Chronic Effects/Carcinogenicity: No information available.

#### Section 4. First Aid Measures

Inhalation: Remove to fresh air. Get medical attention if breathing is difficult.

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, holding eyelids apart to ensure flushing of entire surface. Washing within one minute is essential to achieve maximum effectiveness. Seek medical attention if symptoms develop or persist.

**Skin:** Wash thoroughly with soap and water and remove contaminated clothing and footwear. Wash clothing before reuse. Get medical attention if symptoms develop or persist.

**Ingestion:** Seek medical attention immediately. Do not induce vomiting. Give large amounts of water to drink. Never give anything by mouth to an unconscious person.

ChemTreat, Inc. P-895L Page 1

## Section 5. Fire Fighting Measures

Flammable Properties: Not flammable.

Suitable Extinguishing Media: Use extinguishing media appropriate to the surrounding fire. Fire & Explosion Hazards: Keep containers cool with water spray to minimize the potential of decomposition.

Protective Equipment: If product is involved in a fire, wear full protective clothing including a positive-pressure, NIOSH-approved, self-contained breathing apparatus.

#### Section 6. Accidental Release Measures

**Small Spill:** Construct temporary dikes of dirt, sand, or any readily available inert material to prevent spreading of the material. Wearing appropriate personal protective equipment, move the leaking container to a containment area or plug the leak. Absorb on inert material, then shovel up and dispose of according to local, state, federal regulations.

**Large Spill:** Construct temporary dikes of dirt, sand, or any readily available inert material to prevent spreading of the product. Wearing appropriate personal protective equipment, close or cap valves and/or block or plug hold in leaking container and transfer to another container for proper disposal.

## Section 7. Handling and Storage

Keep away from heat and oxidizers. Do not get in eyes, or on skin and clothing. Wash thoroughly after handling. Avoid breathing mists. Do not ingest. Store at ambient temperatures. Keep container securely closed when not in use. Label precautions also apply to empty container. Recondition or dispose of empty containers in accordance with government regulations.

## Section 8. Exposure Controls/Personal Protection

Use protective equipment in accordance with 29 CFR 1910 Subpart I. Good general ventilation should be sufficient to control airborne levels. Wear chemical splash goggles or safety glasses with full-face shield. Wear rubber gloves. Wash them after each use and replace as necessary. If conditions warrant, wear impervious protective clothing such as boots, aprons, and coveralls to prevent skin contact. Maintain eyewash fountain and quick-drench facilities in work area.

# Section 9. Physical and Chemical Properties

Appearance: Tan viscous Boiling Point: ~ 212 F Evaporation Rate: ~1 Freezing Point: 27 F Melting Point: N/A Molecular Weight: N/D

Odor: Mild pH: 7 - 8

Physical state: Liquid Solubility in Water: Complete

Specific Gravity: ~ 1.101 Vapor Density: N/D Vapor Pressure: N/D

Viscosity: N/D % VOC's: N/D

ChemTreat, Inc. P-895L Page 2

## Section 10. Stability and Reactivity

Chemical Stability: Stable at normal temperatures and pressures

Incompatibility: Strong oxidizers

Hazardous Decomposition Products: Oxides of carbon and inorganic chlorides.

Hazardous Polymerization: Will not occur

# Section 11. Toxicological Information

Chronic effects - no information available on significant long-term effects.

## Section 12. Ecological Information

Not tested

## Section 13. Disposal Considerations

Does not meet the criteria of a hazardous waste as described in 40 CFR 261. Dispose of material is accordance with applicable federal, state, and local regulations.

## Section 14. Transport Information (not meant to be all inclusive)

D.O.T. Shipping Name: Not D.O.T. Regulated

## Section 15. Regulatory Information (Not meant to be all inclusive - selected regulation represented)

TSCA Status: All ingredients listed CERCLA Reportable Quantity: No

SARA Title III:

Section 302 Extremely Hazardous Substances: None

Section 313 Toxic Chemicals: None

CALIFORNIA PROPOSITION 65: No

# Section 16. Other Information

Hazard (NFPA) Rating:

Health 1

Flammability 0

Reactivity 0

SARA Hazard Categories - Section 311/312

Acute - Yes

Chronic - No

Fire - No

Reactive - No

Sudden Release - No

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Timothy H. Reid

Director, Regulatory Affairs

ChemTreat, Inc. P-895L Page 3





### MATERIAL SAFETY DATA SHEET

Section 1. Chemical Product and Company Identification

**Product Name:** 

ChemTreat P-899L

Manufacturer's Name:

ChemTreat, Inc.

**Emergency Telephone Number:** 

(800) 424-9300

Address (Corporate Headquarters)

4461 Cox Road, Glen Allen, VA 23060

Telephone Number for Information:

(800) 648-4579

Date of MSDS:

April 16, 2004

## Section 2. Composition/Hazardous Ingredients

Component

CAS Registry # Wt. %

Aluminum chloride hydroxide sulfate

(polyaluminum chloride, polyaluminum

hydroxychlorosulfate)

39290-78-3

15 - 45

## Section 3. Hazards Identification

Emergency Overview: Clear to colorless straw colored liquid; mild odor; not flammable.

**Potential Health Effects:** 

Eyes - May irritate eyes causing a burning feeling.

Skin - May irritate skin causing a burning feeling.

**Inhalation** - Not expected to be toxic upon inhalation.

**Ingestion:** Not expected to be toxic upon ingestion.

Chronic Effects/Carcinogenicity: There is no evidence that aluminum chloride hydroxide sulfate causes cancer or affects reproduction. Not listed on IARC, NTP or OSHA.

#### Section 4. First Aid Measures

Inhalation: Remove to fresh air. Get medical attention if breathing is difficult.

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, holding eyelids apart to ensure flushing of entire surface. Washing within one minute is essential to achieve maximum effectiveness. Seek medical attention.

**Skin:** Wash thoroughly with soap and water and remove contaminated clothing and footwear. Wash clothing before reuse. Get medical attention if symptoms develop or persist.

**Ingestion:** Do not induce vomiting. Give water or milk to drink. Seek medical attention. Never give anything by mouth to an unconscious person.

ChemTreat, Inc. P-899L Page 1

## Section 5. Fire Fighting Measures

Flammable Properties: N/A

Suitable Extinguishing Media: Use extinguishing media appropriate for any surrounding fires. Fire & Explosion Hazards: May decompose to HCl and SO2 in a fire. Do not release runoff from fire control methods to sewers or waterways.

Protective Equipment: If product is involved in a fire, wear full protective clothing including a positive-pressure, NIOSH-approved, self-contained breathing apparatus.

#### Section 6. Accidental Release Measures

**Small Spill:** Construct temporary dikes of dirt, sand, or any readily available inert material to prevent spreading of the material. Wearing appropriate personal protective equipment, move the leaking container to a containment area or plug the leak. Absorb on inert material, then shovel up and dispose of according to local, state, federal regulations.

**Large Spill:** Construct temporary dikes of dirt, sand, or any readily available inert material to prevent spreading of the product. Wearing appropriate personal protective equipment, close or cap valves and/or block or plug hold in leaking container and transfer to another container for proper disposal.

## Section 7. Handling and Storage

Avoid contact with metal, as product will slowly corrode iron, brass, copper, aluminum and mild steel. Do not get in eyes, or on skin and clothing. Wash thoroughly after handling. Avoid breathing mists. Do not ingest. Store at ambient temperatures. Keep container securely closed when not in use. Label precautions also apply to empty container. Recondition or dispose of empty containers in accordance with government regulations.

## Section 8. Exposure Controls/Personal Protection

Use protective equipment in accordance with 29 CFR 1910 Subpart I. Good general ventilation should be sufficient to control airborne levels. Wear chemical splash goggles or safety glasses with full-face shield. Wear rubber gloves. Wash them after each use and replace as necessary. If conditions warrant, wear impervious protective clothing such as boots, aprons, and coveralls to prevent skin contact. Maintain eyewash fountain and quick-drench facilities in work area.

# Section 9. Physical and Chemical Properties

Appearance: Clear to colorless straw colored

Boiling Point: ~ 230°F Evaporation Rate: N/D Freezing Point: ~11°F Melting Point: N/A

Molecular Weight: N/A

Odor: Mild pH: 2 - 2.5 Physical state: Liquid

Solubility in Water: Complete Specific Gravity: ~ 1.247 Vapor Density: N/A Vapor Pressure: N/A

Viscosity: 5 - 250 centistokes @ 25C

% VOCs: N/D

ChemTreat, Inc. P-899L Page 2

## Section 10. Stability and Reactivity

Chemical Stability: Stable at normal temperatures and pressures

Incompatibility: Reacts with zinc and aluminum to form hydrogen gas. Contact with strong alkalies (e.g. ammonia and its' solutions, sodium hydroxide (caustic), potassium hydroxide, chlorites) may generate heat, splattering or boiling and toxic vapors.

Hazardous Decomposition Products: May decompose to HC1 and SO2 at high temperatures.

Hazardous Polymerization: Will not occur

## Section 11. Toxicological Information

May cause irritation of eyes and skin.

## Section 12. Ecological Information

Fathead Minnow 96h acute LC50 = >10,000 mg/L; Ceriodaphnia dubia 48h acute LC50 = 3,397 mg/L

## Section 13. Disposal Considerations

Dispose of material is accordance with applicable federal, state, and local regulations.

## Section 14. Transport Information (not meant to be all inclusive)

D.O.T. Shipping Name:

Corrosive liquid, n.o.s.

(Aluminum chloride hydroxide sulfate)

Hazard Class: 8; UN/NA #: UN1760, Packing Group: III

## Section 15. Regulatory Information (Not meant to be all inclusive - selected regulation represented)

TSCA Status: All ingredients listed CERCLA Reportable Quantity: None

SARA Title III:

Section 302 Extremely Hazardous Substances: None

Section 313 Toxic Chemicals: None

CALIFORNIA PROPOSITION 65: None known

NSF - Certified to ANSI/NSF 60. Maximum use rate for potable water - 250 mg/L.

## Section 16. Other Information

Hazard (NFPA) Rating:

Health 1 Flammability 0

Reactivity 0

SARA Hazard Categories - Section 311/312

Acute - Yes Chronic - No

Fire - No

Reactive - No

Sudden Release - No

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ChemTreat, Inc.

P-899L

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Timothy H. Reid Director, Regulatory Affairs

> ChemTreat, Inc. P-899L Page 4

Material Name: DEOXYLYTE® 115 ID: R\$00262155

# \* \* \* Section 1 - Chemical Product and Company Identification \* \* \*

## **Product Trade Name DEOXYLYTE® 115**

#### **Manufacturer Information**

Henkel Surface Technologies Henkel Corporation 32100 Stephenson Highway Madison Heights, MI 48071

Contact Phone: (248) 583-9300

Chemtrec Emergency # (800) 424-9300

# \* \* \* Section 2 - Composition / Information on Ingredients \* \* \*

CAS#	Component	Percent
Proprietary	Ethoxylated nonylphenol, branched	1-10

# \* \* \* Section 3 - Hazards Identification \* \* \*

#### **Emergency Overview:**

CAUTION! This product may be irritating to the eyes, skin, and respiratory system.

#### **Eye Contact:**

Liquid is mildly irritating to eyes. Vapors may also produce eye irritation.

#### **Skin Contact:**

No skin irritation can be expected from single short-term exposure to this product. Prolonged or repeated contact may produce some irritation.

#### ingestion:

Acute ingestion may result in mild gastrointestinal distress.

#### Inhalation:

This product is irritating to the respiratory system.

#### **Medical Conditions Aggravated by Exposure:**

Pre-existing eye, skin and respiratory disorders.

# \* \* \* Section 4 - First Aid Measures \* \* \*

#### **Eye Contact:**

In case of contact with the eyes, rinse immediately with plenty of water for 15 minutes, and seek immediate medical attention.

#### **Skin Contact:**

For skin contact, flush with large amounts of water. If irritation persists, get medical attention.

## Ingestion:

If the material is swallowed, get immediate medical attention or advice -- Do not induce vomiting. Give one to two glasses of water or milk. Never give anything by mouth to a victim who is unconscious or is having convulsions.

#### inhalation:

If mist or vapor of this product is inhaled, remove person immediately to fresh air. Seek medical attention if symptoms develop or persist.

# \* \* \* Section 5 - Fire Fighting Measures \* \* \*

Flash Point: > 212 °F (100 °C)

Method Used: Not applicable

Flammability Non-flammable

Classification:

Upper Flammable Not applicable

Lower Flammable Not applicable

Limit (UFL):

**Material Safety Data Sheet** Material Name: DEOXYLYTE® 115 ID: RS00262155 Fire & Explosion Hazards: This product is an aqueous mixture which will not burn. Extinguishing Media: Use any media suitable for the surrounding fires. Fire-Fighting Instructions: Firefighters should wear full protective clothing including self contained breathing apparatus. Section 6 - Accidental Release Measures **Containment Procedures:** Stop the flow of material, if this is without risk. Contain the discharged material. Wear appropriate protective equipment and clothing during clean-up. Clean-Up Procedures: Collect spilled material with an inert absorbent such as sand or vermiculite. Place in properly labeled closed container. Flush area with water to remove trace residue. Dispose of collected material according to regulation. **Section 7 - Handling and Storage** Handling Procedures: Do not get this material in your eyes, on your skin, or on your clothing. Avoid breathing vapors or mists of this product. Keep container closed. Use this product with adequate ventilation. Wash thoroughly after handling. Storage Procedures: Keep this material in a cool, well-ventilated place. Do not store above 120 °F. Thaw and mix thoroughly if frozen. \* \* \* Section 8 - Exposure Controls / Personal Protection **Exposure Guidelines:** A: General Product Information Follow all applicable exposure limits. **B: Component Exposure Limits** ACGIH, OSHA, and NIOSH have not developed exposure limits for any of this product's components. **Engineering Controls:** Ventilation should effectively remove and prevent buildup of any vapor or mist generated from the handling of this product. PERSONAL PROTECTIVE EQUIPMENT As prescribed in the OSHA Standard for Personal Protective Equipment (29 CFR 1910.132), employers must perform a Hazard Assessment of all workplaces to determine the need for, and selection of, proper protective equipment for each task performed. **Eyes/Face Protective Equipment:** Wear chemical goggles; face shield (if splashing is possible). Skin Protection: Use impervious gloves. Use of impervious apron and boots are recommended. **Respiratory Protection:** If ventilation is not sufficient to effectively prevent buildup of aerosols or mists, appropriate NIOSH/MSHA respiratory protection must be provided. Work Practices: Eye wash fountain and emergency showers are recommended. Section 9 - Physical & Chemical Properties

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Material Name: DEOXYLYTE® 115

ID: RS00262155

Physical State: Liquid

Odor: Mild

Vapor Density: Not established Not determined

Melting Point:

pH: 3.4-3.8 VOC:

Percent Volatile: Not determined

Appearance: Light amber Vapor Pressure:

Not established

**Boiling Point:** > 212 °F

Specific Gravity:

1.00 - 1.02 @ 60 °F (16 °C)

Viscosity:

Solubility Water: Complete < 5.0 Percent Solids:

# Section 10 - Chemical Stability & Reactivity Information

## **Chemical Stability:**

Stable under normal conditions.

## Incompatibility:

This product may react with strong acids, bases and oxidizing agents.

## **Decomposition Products:**

Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.

## **Hazardous Polymerization:**

Will not occur.

# **Section 11 - Toxicological Information**

# **Acute Toxicity:**

#### A: General Product Information

No information available for the product.

#### B: Component Analysis - LD50/LC50

No LD50/LC50's are available for this product's components.

## Carcinogenicity:

#### A: General Product Information

No information available for the product.

## **B:** Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

## **Chronic Toxicity**

No information available for the product.

## **Epidemiology:**

No information available for the product.

## **Neurotoxicity:**

No information available for the product.

## Mutagenicity:

No information available for the product.

# Teratogenicity:

No information available for the product.

### Other Toxicological Information:

None available.

# Section 12 - Ecological Information

## **Ecotoxicity:**

#### A: General Product Information

No data available for this product.

### B: Component Analysis - Ecotoxicity - Aquatic Toxicity

No ecotoxicity data are available for this product's components.

Issue Date: 01/09/07 Revision: 1.0000 Page 3 of 5

Material Name: DEOXYLYTE® 115 ID: RS00262155

#### **Environmental Fate:**

No data is available concerning the environmental fate, biodegradation or bioconcentration for this product.

\* \* \* Section 13 - Disposal Considerations \* \* \*

## **US EPA Waste Numbers & Descriptions:**

#### A: General Product Information

Material, if discarded, is not expected to be a characteristic hazardous waste under RCRA.

#### **B: Component Waste Numbers**

No EPA Waste Numbers are applicable for this product's components.

## Disposal Instructions:

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

\* \* \* Section 14 - Transportation Information \* \* \*

#### **US DOT Information**

**Shipping Name:** Please refer to the container label for transportation information.

\* \* \* Section 15 - Regulatory Information \* \* \*

## **US Federal Regulations**

#### A: General Product Information

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

#### **B:** Component Analysis

None of this products components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No Reactive: No

### State Regulations

#### A: General Product Information

No additional information available.

#### **B:** Component Analysis - State

None of this product's components are listed on the state lists from CA, FL, MA, MN, NJ, or PA.

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer.

WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects.

## **Other Regulations**

### A: General Product Information

All components are on the U.S. EPA TSCA Inventory List.

## **B: Component Analysis - Inventory**

Component	CAS#	TSCA	DSL	EINECS
Ethoxylated nonylphenol, branched	Proprietary	Yes	Yes	No

#### C: Component Analysis - WHMIS IDL

No components are listed in the WHMIS IDL

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* * *	Section 16 - Other Information * * *

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Material Name: DEOXYLYTE® 115 ID: RS00262155

NFPA Ratings: Health: 1 Fire: 0 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

HMIS Ratings: Health: 1 Fire: 0 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe \* = Chronic hazard

Key/Legend

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EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; NFPA = National Fire Protection Association; HMIS = Hazardous Material Identification System; CERCLA = Comprehensive Environmental Response, Compensation and Liability Act; SARA = Superfund Amendments and Reauthorization Act

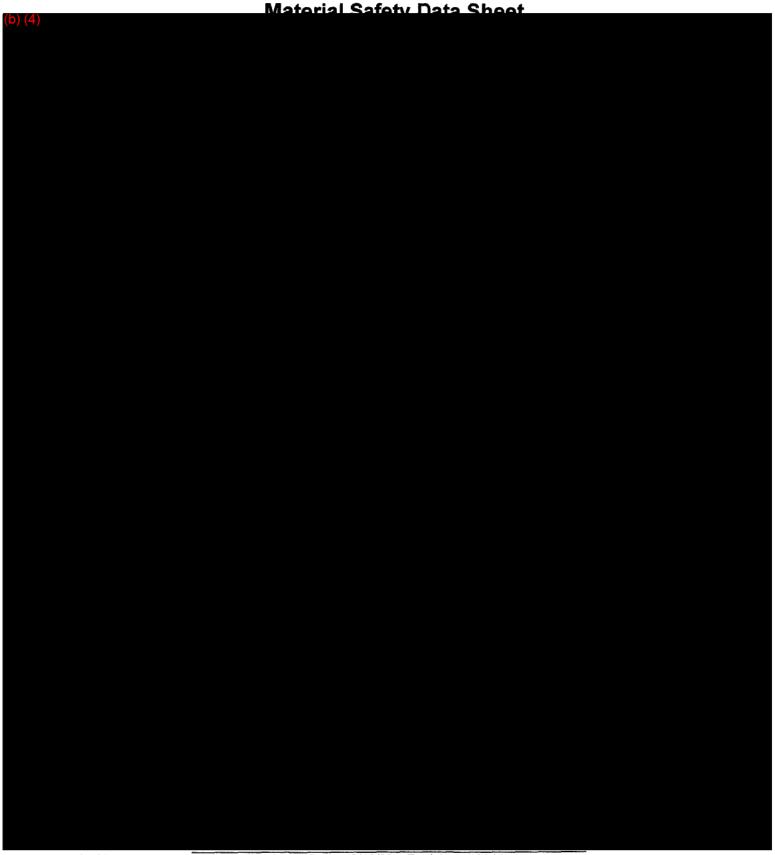
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Contact: Product Safety and Regulatory Affairs

Contact Phone: (248) 583-9300

This is the end of MSDS # RS00262155

Issue Date: 01/09/07 Revision: 1.0000

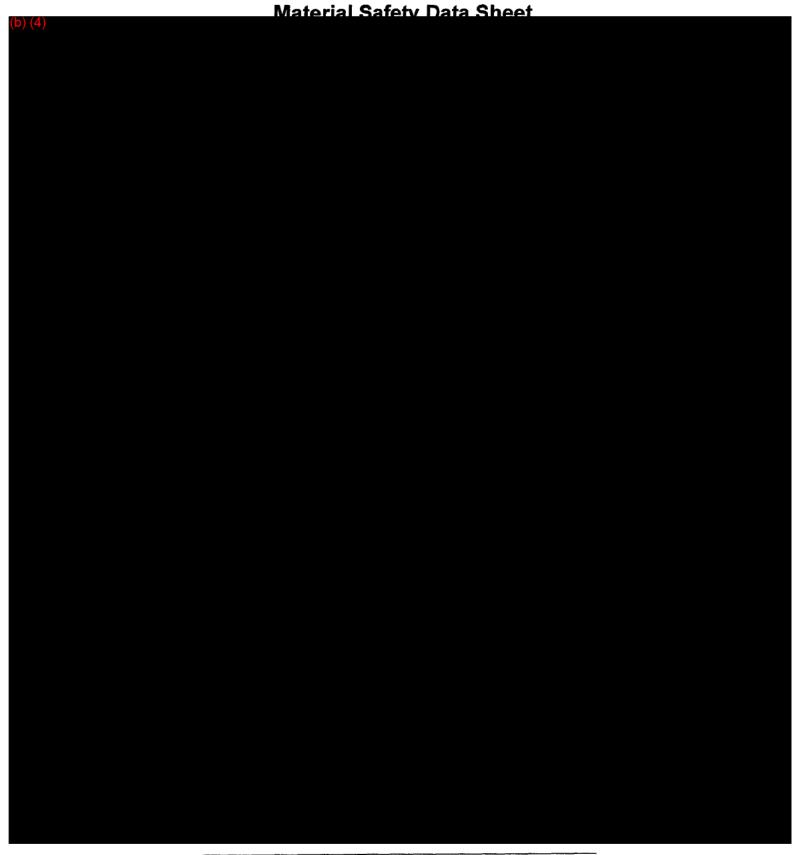


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Material Name: DTI DEFOAMER ID: 236523

# \* \* \* Section 1 - Chemical Product and Company Identification \* \* \*

## **Product Trade Name DTI DEFOAMER**

#### Manufacturer Information

Henkel Surface Technologies Henkel Corporation 32100 Stephenson Highway Madison Heights, MI 48071

Contact Phone: (248) 583-9300

Chemtrec Emergency # (800) 424-9300

# \* \* \* Section 2 - Composition / Information on Ingredients \* \* \*

#### Additional Information:

The manufacturer lists no ingredients as hazardous according to OSHA 29 CFR 1910.1200.

\* \* \* Section 3 - Hazards Identification \* \* \*

#### **Emergency Overview:**

CAUTION!

This product may cause eye and skin irritation.

#### Eye Contact:

This product may cause irritation to the eyes.

#### Skin Contact:

Prolonged and/or repeated skin contact with this product may cause irritation/dermatitis.

#### Skin Absorption:

None expected.

## Ingestion:

Low toxicity. Ingestion of large amounts may produce gastrointestinal disturbances including irritation, nausea, and diarrhea.

#### Inhalation:

This product may cause irritation to the respiratory system.

### **Medical Conditions Aggravated by Exposure:**

Pre-existing eye, skin and respiratory disorders.

# \*\*\* Section 4 - First Aid Measures \*\*\*

#### Eye Contact:

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. If irritation persists get medical attention.

#### Skin Contact:

For skin contact, wash immediately with soap and water. If irritation persists, get medical attention.

#### Ingestion:

If the material is swallowed, get immediate medical attention or advice -- Do not induce vomiting.

#### Inhalation:

If mist or vapor of this product is inhaled, remove person immediately to fresh air. Seek medical attention if symptoms develop or persist.

#### First Aid: Notes to Physician

No additional information available.

## \* \* \* Section 5 - Fire Fighting Measures \* \* \*

Material Name: DTI DEFOAMER

ID: 236523

Flash Point: 400 °F (204.42 °C)

Method Used: P-M Closed Cup

Non-flammable Flammability

Upper Flammable

Not applicable

Lower Flammable Not applicable Classification:

Limit (UFL): Limit (LFL):

## Fire & Explosion Hazards:

This product is combustible at high temperatures.

#### **Decomposition Products:**

Irritating and toxic gases or fumes may be released during a fire. Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.

## **Extinguishing Media:**

Dry chemical, foam, carbon dioxide, water fog.

## **Fire-Fighting Instructions:**

Firefighters should wear full protective clothing including self contained breathing apparatus

Section 6 - Accidental Release Measures

#### **Containment Procedures:**

Stop the flow of material, if this is without risk. Wear appropriate protective equipment and clothing during cleanup. Remove sources of ignition.

### Clean-Up Procedures:

Absorb spill with inert material. Shovel material into appropriate container for disposal. Dispose of collected material according to regulation.

> \* \* \* **Section 7 - Handling and Storage**

## **Handling Procedures:**

Avoid contact with eyes, skin and clothing. Avoid breathing vapors or mists of this product. Do not take internally. For industrial use only. Launder work clothes frequently. Do not pressurize, cut, heat or weld containers. Empty product containers may contain product residue. Do not reuse empty containers.

#### **Storage Procedures:**

Keep container tightly closed and in a cool, well-ventilated place away from incompatible materials. Eliminate all sources of ignition. Store between 40 and 100 °F. If stored outside of this range, mix well before using.

# Section 8 - Exposure Controls / Personal Protection

#### **Exposure Guidelines:**

#### A: General Product Information

Keep formation of airborne mists to a minimum.

## **B: Component Exposure Limits**

This material has no components listed.

#### **Engineering Controls:**

Ventilation should effectively remove and prevent buildup of any vapor or mist generated from the handling of this product.

#### PERSONAL PROTECTIVE EQUIPMENT

Eye wash fountain and emergency showers are recommended.

# **Eves/Face Protective Equipment:**

Wear chemical goggles.

#### Skin Protection:

Use impervious gloves. Use of impervious apron and boots are recommended.

## **Respiratory Protection:**

If ventilation is not sufficient to effectively prevent buildup of aerosols or vapors, appropriate NIOSH/MSHA respiratory protection must be provided.

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Material Name: DTI DEFOAMER ID: 236523

# Section 9 - Physical & Chemical Properties

Physical State: Liquid

Odor: Solvent

Vapor Density: Greater than air. Specific Gravity: 0.95 - 1.05

Viscosity: Not determined Solubility Water: Slight

Percent Volatile: Not applicable

Opaque, white emulsion Appearance:

Vapor Pressure: Not determined **Boiling Point:** Not determined

pH: 7.5

VOC: Not determined **Evaporation Rate:** Not determined

**Percent Solids:** >60

# Section 10 - Chemical Stability & Reactivity Information

#### **Chemical Stability:**

Stable under normal conditions.

### **Conditions to Avoid:**

Keep away from heat, sparks, or open flame.

#### Incompatibility:

This product may react with strong oxidizing agents.

## **Decomposition Products:**

Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.

### **Hazardous Polymerization:**

Will not occur.

# Section 11 - Toxicological Information

### **Acute Toxicity:**

#### A: General Product Information

No information available for the product.

#### B: Component Analysis - LD50/LC50

This material has no components listed.

### Carcinogenicity:

#### A: General Product Information

No information available for the product.

## **B: Component Carcinogenicity**

This material has no components listed.

## **Epidemiology:**

No information available for the product.

#### **Neurotoxicity:**

No information available for the product.

### **Mutagenicity:**

No information available for the product.

#### **Teratogenicity:**

No information available for the product.

### Other Toxicological Information:

None available.

# **Section 12 - Ecological Information**

## **Ecotoxicity:**

#### A: General Product Information

No data available for this product.

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Material Name: DTI DEFOAMER ID: 236523

## **B: Component Analysis - Ecotoxicity - Aquatic Toxicity**

This material has no components listed.

#### **Environmental Fate:**

No data is available concerning the environmental fate, biodegradation or bioconcentration for this product.

# '\*\* Section 13 - Disposal Considerations \*\*'

### **US EPA Waste Numbers & Descriptions:**

#### A: General Product Information

Material, if discarded, is not expected to be a characteristic hazardous waste under RCRA.

#### **B: Component Waste Numbers**

This material has no components listed.

#### **Disposal Instructions:**

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

# \* \* \* Section 14 - Transportation Information \* \* \*

#### **US DOT Information**

**Shipping Name:** Please refer to the container label for transportation information.

# \* \* \* Section 15 - Regulatory Information \* \* \*

#### **US Federal Regulations**

#### A: General Product Information

No additional information available.

#### **B:** Component Analysis

This material has no components listed.

SARA 311/312: Acute: No Chronic: No Fire: No Pressure: No Reactive: No

#### State Regulations

#### A: General Product Information

No additional information available.

## **B: Component Analysis - State**

This material has no components listed.

#### **Other Regulations**

## A: General Product Information

All components are on the U.S. EPA TSCA Inventory List.

#### B: Component Analysis - WHMIS IDL

This material has no components listed.

## \* \* \* Section 16 - Other Information \* \* \*

NFPA Ratings: Health: 1 Fire: 1 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

HMIS Ratings: Health: 1 Fire: 1 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe \* = Chronic hazard

## Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; NFPA = National Fire Protection Association; HMIS = Hazardous Material Identification System; CERCLA = Comprehensive Environmental Response, Compensation and Liability Act; SARA = Superfund Amendments and Reauthorization Act

**Material Name: DTI DEFOAMER** 

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ID: 236523

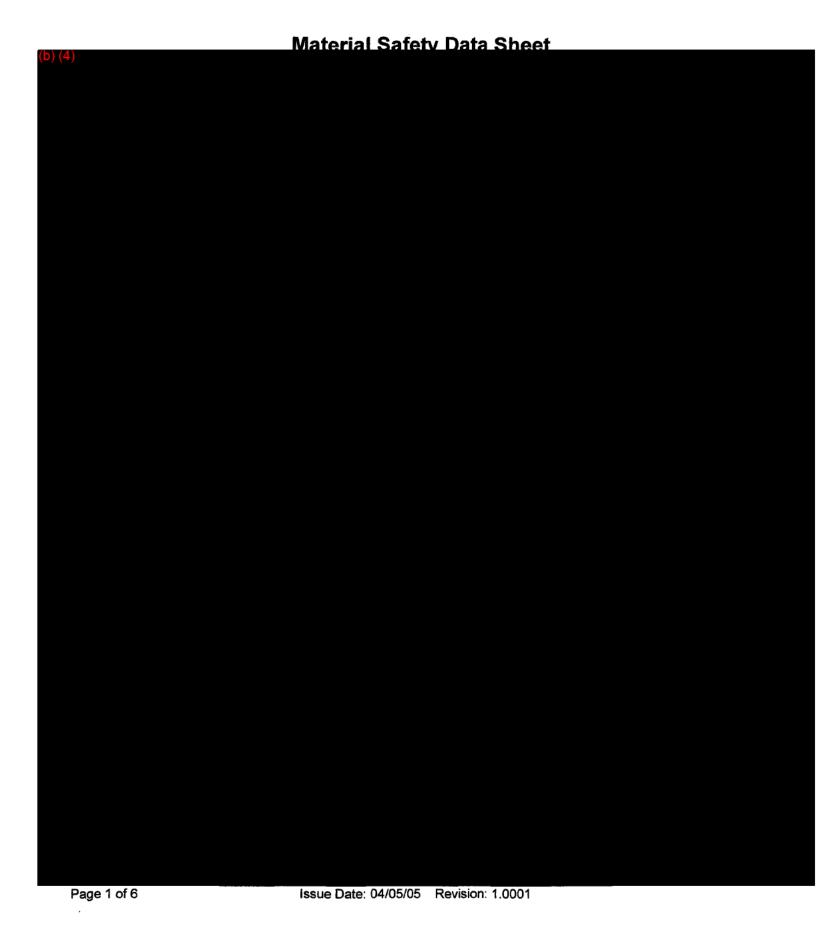
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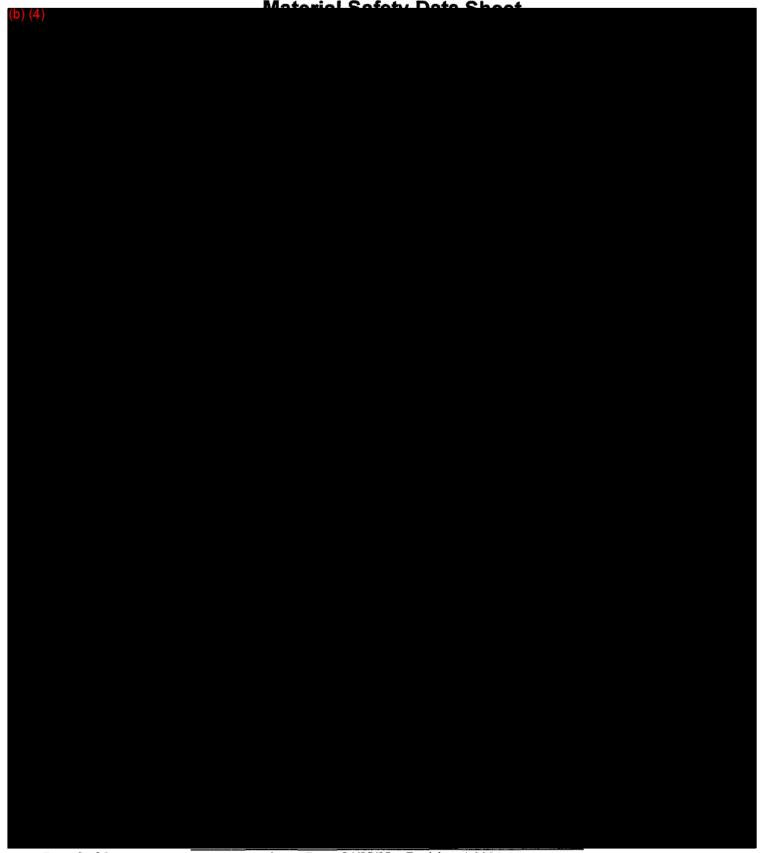
Contact: Regulatory Affairs and Product Acceptance

Contact Phone: (248) 583-9300

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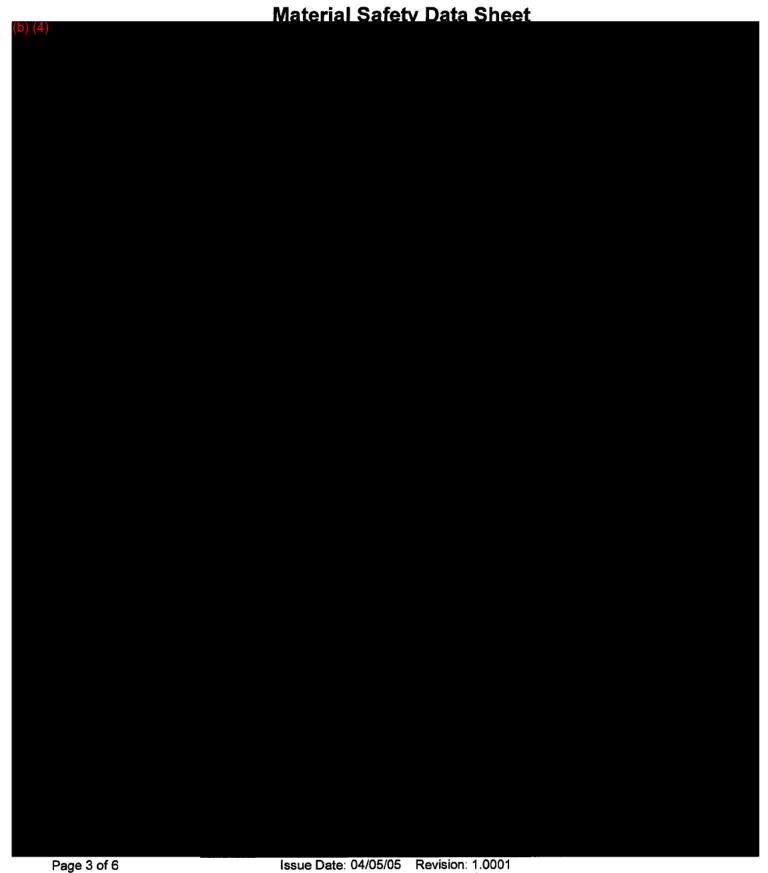
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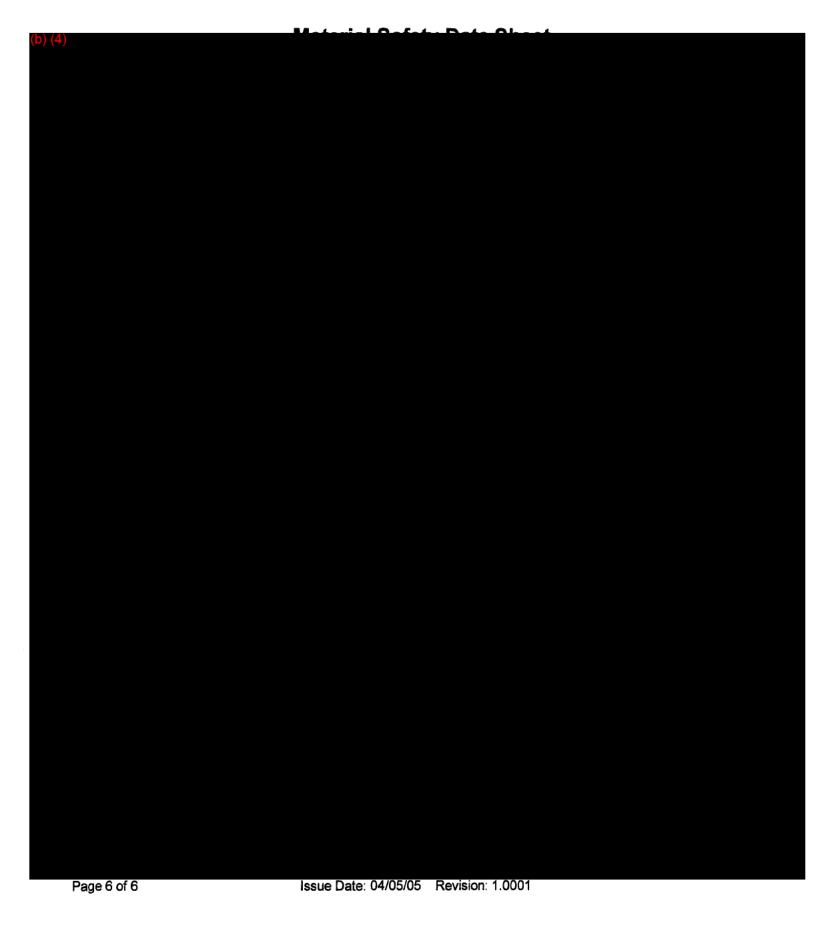
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UNIVAR USA - MSDS Univar USA Înc. 17425 NE Union Hill Road Redmond, WA 98052 (425) 889-3400

For Emergency Assistance involving chemicals call - CHEMTREC (800) 424-9300

The Version Date and Number for this MSDS is: 08/30/2006 - #008

PRODUCT NAME:

HYDROCHLORIC ACID (HCL) (ALL GRADES)

MSDS NUMBER:

oz34514

DATE ISSUED:

01/26/2006

**SUPERSEDES:** 

07/01/2005

ISSUED BY:

008820

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Distributed by: Univar USA Inc. 17425 NE Union Hill Road Redmond, WA 98052 425-889-3400

SUBSTANCE: HYDROCHLORIC ACID (HCL) (ALL GRADES)

TRADE NAMES:

Hydrochloric Acid (HCL) 10%, 14%, 20%, 28%, 20 Be, 22 Be, Technical

SYNONYMS:

Muriatic Acid; HCL Solution; Aqueous hydrogen chloride

PRODUCT USE: process chemical, metal cleaning, water purification, petroleum industry

2. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=3 FIRE=0 REACTIVITY=1

HMIS RATINGS (SCALE 0-4): HEALTH=3 FLAMMABILITY=0 REACTIVITY=1

EMERGENCY OVERVIEW: COLOR: colorless PHYSICAL FORM: liquid ODOR: pungent odor

ODOR: pungent odor SIGNAL WORD: DANGER

MAJOR HEALTH HAZARDS: CAUSES BURNS TO THE RESPIRATORY TRACT, SKIN, EYES AND GASTROINTESTINAL TRACT. CAUSES PERMANENT EYE DAMAGE. MAY BE HARMFUL OR FATAL IF SWALLOWED.

PHYSICAL HAZARDS: May spatter or generate heat when mixed with water. Contact with metals may evolve flammable hydrogen gas.

Page 1

PRECAUTIONARY STATEMENTS: Do not breathe vapor or mist. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Wash thoroughly after handling. Use only with adequate ventilation.

POTENTIAL HEALTH EFFECTS:

**INHALATION:** 

SHORT TERM EXPOSURE: burns, cough, pulmonary edema

LONG TERM EXPOSURE: erosion of teeth

SKIN CONTACT:

SHORT TERM EXPOSURE: burns, ulceration

LONG TERM EXPOSURE: dermatitis

EYE CONTACT:

SHORT TERM EXPOSURE: burns, eye damage, blindness LONG TERM EXPOSURE: to our knowledge, no effects are known INGESTION: SHORT TERM EXPOSURE: burns

LONG TERM EXPOSURE: ingestion of harmful amounts is unlikely

**CARCINOGEN STATUS:** 

OSHA: No NTP: No IARC: No

#### 3. COMPOSITION INFORMATION ON INGREDIENTS

COMPONENT: WATER CAS NUMBER: 7732-18-5 PERCENTAGE: 63-91

COMPONENT: HYDROGEN CHLORIDE

CAS NUMBER: 7647-01-0 PERCENTAGE: 9-36

### 4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. If respiration or pulse has stopped, have a trained person administer Basic Life Support (Cardio-Pulmonary Resuscitation/Automatic External Defibrillator) and CALL FOR EMERGENCY SERVICES IMMEDIATELY.

SKIN CONTACT: Immediately flush contaminated areas with water. Remove contaminated clothing, jewelry, and shoes immediately. Wash contaminated areas with soap and water. Thoroughly clean and dry contaminated clothing and shoes before reuse. Discard footwear which cannot be decontaminated. GET MEDICAL ATTENTION IMMEDIATELY.

EYE CONTACT: Immediately flush eyes with a directed stream of water for at least 15 minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissues. Washing eyes within several seconds is essential to achieve maximum effectiveness. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION: Never give anything by mouth to an unconscious or convulsive person. If swallowed, do not induce vomiting. Give large amounts of water. If vomiting occurs spontaneously, keep airway clear. Give more water when vomiting stops. GET MEDICAL ATTENTION IMMEDIATELY.

NOTE TO PHYSICIAN: The absence of visible signs or symptoms of burns does NOT reliably exclude the presence of actual tissue damage. Probable mucosal damage may contraindicate the use of gastric lavage.

#### 5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: May release toxic gases.

EXTINGUISHING MEDIA: Use extinguishing agents appropriate for surrounding fire.

FIRE FIGHTING: Keep unnecessary people away, isolate hazard area and deny entry. Wear NIOSH approved positive-pressure self-contained breathing apparatus. Move container from fire area if it can be done without risk. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Cool containers with water.

SENSITIVITY TO MECHANICAL IMPACT: Not sensitive

SENSITIVITY TO STATIC DISCHARGE: Not sensitive

FLASH POINT: not flammable

**HAZARDOUS COMBUSTION PRODUCTS:** 

Thermal decomposition products or combustion: hydrogen chloride

### 6. ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE:

Evacuation of surrounding area may be necessary for large spills. Wear appropriate personal protective equipment recommended in Section 8 of the MSDS. Completely contain spilled material with dikes, sandbags, etc. Shut off ventilation system if needed. Reprocess or reuse if possible. Neutralize with soda ash or dilute caustic soda. Collect with appropriate absorbent and place into suitable container. Liquid material may be removed with a vacuum truck. Keep out of water supplies and sewers. This material is acidic and may lower the pH of the surface waters with low buffering capacity. Releases should be reported, if required, to appropriate agencies. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

#### 7. HANDLE AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Store in rubber-lined steel, acid-resistant plastic or glass containers. Keep container tightly closed and properly labeled. Store in a cool, dry place. Store in a well-ventilated area. Do not store in aluminum container or use aluminum fittings or transfer lines. Dike and vent storage tanks. Keep separated from incompatible substances (see Section 10 of the MSDS).

HANDLING: Avoid breathing vapor or mist. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. When mixing, slowly add to water to minimize heat generation and spattering.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:
HYDROGEN CHLORIDE, ANHYDROUS:
HYDROGEN CHLORIDE (HYDROCHLORIC ACID):
5 ppm (7 mg/m3) OSHA ceiling
2 ppm ACGIH ceiling

VENTILATION: Use closed systems when possible. Provide local exhaust ventilation where vapor or mist may be generated. Ensure compliance with applicable exposure limits.

Page 3

EYE PROTECTION: Wear safety glasses with side shields. Wear chemical safety goggles with a faceshield or chemical splash hood. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear chemical resistant clothing and rubber boots when potential for contact with the material exists. Always place pants legs over boots.

GLOVES: Wear appropriate chemical resistant gloves.

PROTECTIVE MATERIAL TYPES: neoprene, nitrile, polyvinyl chloride (PVC), rubber, Kappler(R) CPF3, Tychem(R)

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH: 50 ppm

RESPIRATOR: Where vapor concentration exceeds or is likely to exceed applicable exposure limits, a NIOSH approved respirator with acid gas canister is required. When an air-purifying respirator is not adequate or for spills and/or emergencies of unknown concentrations, a NIOSH approved self-contained breathing apparatus or airline respirator with full-face piece is required. A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: liauid clear APPEARANCE: colorless COLOR: ODOR: pungent odor

MOLECULAR WEIGHT: 36.46 MOLECULAR FORMULA: HCL

140-221 F (60.0-105 C) -29 to 5 F (-34 to -15 C) **BOILING POINT:** FREEZING POINT: 14.6-80 mmHg @), 20 C

VAPOR PRESSURE:

VAPOR DENSITY (air=1): 1.3 20 C SPECIFIC GRAVITY (water=1): 1.05-1.18 BULK DENSITY: 8.75-9.83 lbs/gal

WATER SOLUBILITY: 100%

2 (0.2% solution) PH: **VOLATILITY:** 9-36 % by volume

0.3 ppm (causes olfactory fatigue) <1.00 (butyl acetate=1) ODOR THRESHOLD:

**EVAPORATION RATE:** 

COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available

#### 10. STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Contact with water may produce a strong exothermic reaction with spattering. Contact with metals may evolve flammable hydrogen gas. Hydrogen chloride may react with cyanide, forming lethal concentrations of hydrocyanic acid.

INCOMPATIBILITIES: metals, alkalis (such as sodium hydroxide), mercuric sulfate, perchloric acid, carbides of calcium, cesium, rubidium, acetylides of cesium and rubidium, phosphides of calcium and uranium, lithium silicide

#### HAZARDOUS DECOMPOSITION:

Thermal decomposition products or combustion: hydrogen chloride

POLYMERIZATION: Will not polymerize.

#### 11. TOXICOLOGICAL INFORMATION

HYDROCHLORIC ACID (HC1) (ALL GRADES): HYDROCHLORIC ACID (HC1) (ALL GRADES):
TOXICITY DATA: Hydrochloric Acid: 900 mg/kg oral-rabbit LD50; 1108 ppm/1
hour(s) inhalation-rat; 3124 ppm/l hour(s) inhalation-rat LC50. Rinsed Draize
Test: 5 mg/30 second(s) rabbit-eye mild. Standard Draize Test: 4% / 24
hour(s) skin-human mild. Inhalation will cause severe irritation and possible
burns with coughing and choking. If inhaled deeply, edema and hemorrhage of
the lungs may occur. Levels of 10-35 ppm may cause irritation of throat and
50-100 ppm is unbearable for 1 hour. Inflammation, destruction of nasal
passages and breathing difficulties may occur with higher concentrations and
may be delayed in onset. 1000-2000 ppm may be fatal. Prolonged exposure may
cause discoloration and/or erosion of teeth. Contact with eyes causes
immediate severe irritation with possible burns, permanent visual impairment, immediate severe irritation with possible burns, permanent visual impairment, or total loss of sight. Contact with fumes or liquid may produce corrosive burns. Dermal exposure also results in irritation, pain, dermatitis, and ulceration. Ingestion may cause immediate burns of the mouth, esophagus, and stomach. Ingestion may cause intense pain, nausea, vomiting, bleeding, circulating collapse, shock and death.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: respiratory system (including asthma and other breathing disorders)

#### 12. ECOLOGICAL INFORMATION

#### ECOTOXICITY DATA:

FISH TOXICITY: Hydrochloric Acid: 178 mg/L LC50 Goldfish (1 to 2 hour survival time); 100-330 mg/L LC50 Shrimp. 3.6 mg/L 48 hour(s) (static) LC50 Bluegill This material is believed to be toxic to aquatic life.

#### FATE AND TRANSPORT:

BIODEGRADATION: This material is inorganic and not subject to biodegradation.

PERSISTENCE: This material is believed not to persist in the environment. This material is believed to exist in the disassociated state in the environment. SOIL: Hydrogen chloride will sink into the soil. The acid will dissolve some soil material (in particular, anything with a carbonate base) and will be somewhat neutralized. The remaining portion is thought to transport downward to the water table. WATER: Dissociates almost completely and will be neutralized by natural alkalinity and carbon dioxide.

BIOCONCENTRATION: This material is believed not to bioaccumulate.

#### 13. DISPOSAL CONSIDERATIONS

Reuse or reprocess if possible. Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D002.

#### 14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101: PROPER SHIPPING NAME: Hydrochloric acid solution

ID NUMBER: UN1789

HAZARD CLASS OR DIVISION: 8

PACKING GROUP: II LABELING REQUIREMENTS: 8

DOT HAZARDOUS SUBSTANCE(S):
Hydrochloric acid 5000 lb(s) (2270 kg(s))

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

SHIPPING NAME: Hydrochloric acid solution

UN NUMBER: UN1789

CLASS: 8

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PACKING GROUP/RISK GROUP: II

#### 15. REGULATORY INFORMATION

U.S. REGULATIONS:

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): HYDROGEN CHLORIDE (HYDROCHLORIC ACID): 5000 LBS RQ (liquid)

CHLORINE: 10 LBS RQ

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30):

HYDROGEN CHLORIDE (HYDROCHLORIC ACID): 500 LBS TPQ (gas)

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):

ACUTE: Yes
CHRONIC: NO
FIRE: NO
REACTIVE: NO
SUDDEN RELEASE: NO

SARA TITLE III SECTION 313 (40 CFR 372.65): HYDROGEN CHLORIDE (HYDROCHLORIC ACID): aerosol form only

This product contains a toxic chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR 372. Refer to Section 3.

OSHA PROCESS SAFETY (29CFR1910.119):

HYDROGEN CHLORIDE (HYDROCHLORIC ACID): 5000 LBS TQ (gas)

CHLORINE: 1500 LBS TQ

FDA: This material has Generally Recognized as Safe (GRAS) status under specific FDA regulations. Additional information is available from the Code of Federal Register (CFR) which is accessible on the FDA's website.

#### STATE REGULATIONS:

California Proposition 65: This product may contain contaminants known to the State of California to cause cancer or reproductive toxicity as listed under Proposition 65 State Drinking Water and Toxic Enforcement Act. For additional information, contact Customer Service.

NEW JERSEY WORKER AND COMMUNITY RIGHT TO KNOW: REPORTING REQUIREMENT: WATER 7732-18-5 63-91% HYDROGEN CHLORIDE 7647-01-0 9-36%

RIGHT TO KNOW HAZARDOUS SUBSTANCE LIST: HYDROGEN CHLORIDE 7647-01-0 9-36% CHLORINE 7782-50-5 0-50 ppm

SPECIAL HEALTH HAZARD SUBSTANCE LIST: HYDROGEN CHLORIDE 7647-01-0 9-36%

PENNSYLVANIA RIGHT TO KNOW: REPORTING REQUIREMENT: WATER 7732-18-5 63-91% HYDROGEN CHLORIDE 7647-01-0 9-36%

HAZARDOUS SUBSTANCE LIST: HYDROGEN CHLORIDE 7647-01-0 9-36%

ENVIRONMENTAL HAZARDOUS SUBSTANCE LIST: HYDROGEN CHLORIDE 7647-01-0 9-36%

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SPECIAL HAZARDOUS SUBSTANCE LIST: Not regulated.

CANADIAN REGULATIONS: WHMIS CLASSIFICATION: E.

NATIONAL INVENTORY STATUS:

U.S. INVENTORY (TSCA): All the components of this substance are listed on or are exempt from the inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CANADA INVENTORY (DSL/NDSL): All components of this product are listed on the DSL.

For Additional Information: Contact: MSDS Coordinator - Univar USA During business hours, Pacific Time - (425) 889-3400

NOTICE Univar USA expressly disclaims all express or implied warranties of merchantibility and fitness for a particular purpose with respect to the product or information provided herein, and shall under no circumstances be liable for incidental or consequential damages.

Do not use ingredient information and/or ingredient percentages in this MSDS as a product specification. For product specification information refer to a Product Specification Sheet and/or a Certificate of Analysis. These can be obtained from your local Univar USA Sales Office.

All information appearing herein is based upon data obtained from the manufacturer and/or recognized technical sources. While the information is believed to be accurate, Univar USA makes no representations as to its accuracy or sufficiency. Conditions of use are beyond Univar USA's control. Therefore, users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their particular purposes, and they assume all risks of their use, handling, and disposal of the product or from the publication or use of, or reliance upon, information contained herein. This information relates only to the product designated herein and does not relate to its use in combination with any other material or in any other process.

END OF MSDS

Product Trade Name: KATHON® 886 MW BIOCIDE

# \* \* \* Section 1 - Chemical Product and Company Identification \* \* \*

Product Trade Name: KATHON® 886 MW BIOCIDE

Manufacturer Information Henkel Surface Technologies 32100 Stephenson Highway

Madison Heights, MI 48071

Contact Phone: (248) 583-9300

Chemtrec Emergency # (800) 424-9300

Code: 236526

# \* \* \* Section 2 - Composition / Information on Ingredients \* \* \*

CAS#	Component	Percent
26172-55-4	5-Chloro-2-methyl-3-isothiazolone	10-20
10377-60-3	Magnesium nitrate	10-20
7786-30-3	Magnesium chloride	1-10
2682-20-4	2-Methyl-3-isothiazolone	1-10

#### **Component Related Regulatory Information**

This product may be regulated, have exposure limits or other information identified as the following: Magnesium (7439-95-4).

#### Additional Information:

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

## \* \* \* Section 3 - Hazards Identification \* \* \*

#### **Emergency Overview:**

DANGER -- CORROSIVE! Contact with this material will cause burns to the skin, eyes and mucous membranes.

#### Eye Contact:

This product is severely irritating to the eyes and may cause irreversible damage including burns and blindness.

### **Skin Contact:**

Contact with liquid may produce severe skin irritation including redness, inflammation and chemical burns. Following skin exposure to this product, the sensation of irritation or pain may be delayed. Prolonged contact with this product may cause allergic skin sensitization reactions.

#### Skin Absorption:

A component in this product may be absorbed through the skin in harmful amounts.

# Ingestion:

This product may produce corrosive damage to the gastrointestinal tract if it is swallowed. This product may cause methemoglobinemia characterized by a reduction in oxygen carrying capacity of the blood with symptoms including headache, dizziness, flushed face, fatigue, nausea, vomiting, drowsiness, stupor, tremors, uneven heart action, coma and rarely death.

#### Inhalation:

Inhalation of mists of this product may cause severe irritation and burns to the respiratory tract.

# **Medical Conditions Aggravated by Exposure:**

Pre-existing eye, skin and respiratory disorders. Disorders of the blood.

### \* \* \* Section 4 - First Aid Measures \* \* \*

## Eye Contact:

In case of contact with the eyes, rinse immediately with plenty of water for 15 minutes, and seek immediate medical attention.

#### Skin Contact:

Immediately take off all contaminated clothing. For skin contact, flush with large amounts of water. Seek immediate medical attention.

Product Trade Name: KATHON® 886 MW BIOCIDE

#### Ingestion:

If the material is swallowed, get immediate medical attention or advice -- Do not induce vomiting. Give one to two glasses of water or milk. Never give anything by mouth to a victim who is unconscious or is having convulsions.

#### Inhalation:

If mist or vapor of this product is inhaled, remove person immediately to fresh air. Seek medical attention if symptoms develop or persist.

## First Aid: Notes to Physician

No additional information available.

# \* \* \* Section 5 - Fire Fighting Measures \* \* \*

Flash Point: Not applicable Method Used: Not applicable

Flammability Classification:
Upper Flammable Limit (UFL):
Not applicable
Not applicable
Not applicable
Not applicable

#### Fire & Explosion Hazards:

This product is an aqueous mixture which will not burn.

## **Decomposition Products:**

Irritating and toxic gases or fumes may be released during a fire. Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons. Decomposition of this product may yield oxides of sulfur and nitrogen. Thermal decomposition may yield hydrogen chloride.

## **Extinguishing Media:**

Use any media suitable for the surrounding fires.

# Fire-Fighting Instructions:

Firefighters should wear full protective clothing including self contained breathing apparatus.

# \* \* \* Section 6 - Accidental Release Measures \* \* \*

#### **Containment Procedures:**

Stop the flow of material, if this is without risk. Wear appropriate protective equipment and clothing during clean-up.

#### Clean-Up Procedures:

Absorb spill with inert material. Shovel material into appropriate container for disposal. Dispose of collected material according to regulation.

# \* \* \* Section 7 - Handling and Storage \* \* \*

## **Handling Procedures:**

Do not get this material in your eyes, on your skin, or on your clothing. Do not take internally. Wash thoroughly after handling. Do not inhale vapors or mists of this product. For industrial use only.

#### **Storage Procedures:**

Keep container tightly closed and in a cool, well-ventilated place away from incompatible materials. Off gases from product may collect in the headspace of container during storage. Open container only in well-ventilated area or with respiratory protection. Do not pressurize, cut, heat or weld containers. Empty product containers may contain product residue. Do not reuse empty containers. Store between 14 °F (40 °C) and 104 °F (-10 °C). Do not store this material in containers made of steel.

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Code: 236526

Product Trade Name: KATHON® 886 MW BIOCIDE

# \* \* \* Section 8 - Exposure Controls / Personal Protection \* \* \*

#### **Exposure Guidelines:**

#### A: General Product Information

Keep formation of airborne mists to a minimum.

The supplier recommends the following exposure limits for this product:

0.1 mg/m3 TWA

0.3 mg/m3 STEL

#### **B:** Component Exposure Limits

ACGIH, OSHA, and NIOSH have not developed exposure limits for any of this product's components.

### **Engineering Controls:**

Ventilation should effectively remove and prevent buildup of any vapor or mist generated from the handling of this product.

# PERSONAL PROTECTIVE EQUIPMENT

### **Eyes/Face Protective Equipment:**

Wear chemical goggles; face shield (if splashing is possible).

### **Skin Protection:**

Use impervious gloves. Use of butyl rubber or nitrile gloves is recommended Use of impervious apron and boots are recommended.

### **Respiratory Protection:**

If ventilation is not sufficient to effectively prevent buildup of aerosols or vapors, appropriate NIOSH/MSHA respiratory protection must be provided.

### **Personal Protective Equipment:**

Eye wash fountain and emergency showers are recommended.

# \* \* \* Section 9 - Physical & Chemical Properties \* \* \*

Physical State: Liquid

Odor: Pungent

Vapor Density: 0.62 (estimate)
Melting Point: -27 °F (-33 °C)

pH: 1.9 - 4.0

pH: 1.9 - 4.0 VOC: Not applicable

Evaporation Rate: <1 (butyl acetate = 1)

Percent Solids: Not applicable

Appearance: Amber

Vapor Pressure: 0.1 mm Hg (isothiazolone)

Code: 236526

Boiling Point: 212 ° F (100 ° C)

Specific Gravity: 1.3

Viscosity: 16 CPS @ 25 °C
Solubility Water: Complete

Percent Volatile: 60 - 64 (water)

# \* \* \* Section 10 - Chemical Stability & Reactivity Information \* \* \*

#### **Chemical Stability:**

Stable under normal conditions.

#### **Conditions to Avoid:**

None expected.

#### Incompatibility:

This product may react with oxidizing agents. This product may react with reducing agents. Avoid contact with amines and mercaptans.

#### **Decomposition Products:**

Upon decomposition, product emits acrid dense smoke with carbon dioxide, carbon monoxide, trace oxides of nitrogen and sulfur, and water. Thermal decomposition may yield hydrogen chloride.

Product Trade Name: KATHON® 886 MW BIOCIDE Code: 236526

## **Hazardous Polymerization:**

Will not occur.

# \* \* \* Section 11 - Toxicological Information \* \* \*

### **Acute Toxicity:**

#### A: General Product Information

No information available for the product. Isothiazolone compounds are corrosive to the eyes, skin, and gastrointestinal tract in concentrations exceeding 1.5% and the sensation of pain may be delayed. Isothiazolone compounds may cause allergic skin sensitization reactions in sensitive individuals. Some nitrates are associated with the development of methemoglobinemia. Ingested soluble nitrates can be reduced to nitrites in the body, which can then decrease the oxygen carrying capacity of the blood. Symptoms of methemoglobinemia include headache, dizziness, flushed face, fatigue, nausea, vomiting, drowsiness, stupor, tremors, uneven heart action, coma and rarely death.

Kathon (R) 886 MW Biocide: Rat - oral - LD50 - 457 mg/kg.

Rat - acute inhalation - LC50- 2.6 mg/L for 4 H

Rabbit - dermal - LD50 - 660 mg/kg. Eye irritation - rabbit - corrosive

Skin irritation - rabbit - severe irritation, may be corrosive

## B: Component Analysis - LD50/LC50

Magnesium chloride (7786-30-3)

Oral LD50 Mouse: 4700 mg/kg Oral LD50 Rat: 2800 mg/kg

### **Carcinogenicity:**

#### A: General Product Information

No information available for the product.

### **B:** Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

#### **Epidemiology:**

No information available for the product.

#### **Neurotoxicity:**

No information available for the product.

## Mutagenicity:

No information available for the product.

#### Teratogenicity:

No information available for the product.

### Other Toxicological Information:

None available.

# \* \* \* Section 12 - Ecological Information \* \* \*

## **Ecotoxicity:**

#### A: General Product Information

Aquatic toxicity for product: LC50 (96 hr) rainbow trout: 0.19 ppm (results are based on analytical concentration of active ingredient.; LC50 (96 hr) bluegill sunfish: 0.028 ppm (results are based on analytical concentration of active ingredient.; LC50 (96 hr) 0.3 ppm (results are based on nominal concentration of active ingredient.; EC50 (48 hr) water flea: 0.16 ppm (results are based on analytical concentration of active ingredient.

## **B: Component Analysis - Ecotoxicity - Aquatic Toxicity**

No ecotoxicity data are available for this product's components.

Product Trade Name: KATHON® 886 MW BIOCIDE

#### **Environmental Fate:**

No data is available concerning the environmental fate, biodegradation or bioconcentration for this product.

\* \* \* Section 13 - Disposal Considerations \* \* \*

## **US EPA Waste Numbers & Descriptions:**

#### A: General Product Information

Wastes of this product may meet the characteristics of a RCRA corrosive waste (D002).

#### **B: Component Waste Numbers**

No EPA Waste Numbers are applicable for this product's components.

#### **Disposal Instructions:**

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations. Neutralize the spilled material before disposal.

\* \* \* Section 14 - Transportation Information \* \* '

#### **US DOT Information**

**Shipping Name:** Please refer to the container label for transportation information.

\* \* \* Section 15 - Regulatory Information \* \* \*

### **US Federal Regulations**

#### A: General Product Information

No additional information available.

## **B: Component Analysis**

None of this products components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No Reactive: No

### **State Regulations**

#### A: General Product Information

No additional information available.

#### **B: Component Analysis - State**

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS#	CA	FL	MA	MN	NJ	PA
Magnesium nitrate (1 related to Magnesium)	10377-60-3	Yes1	Yes	Yes	No	Yes	Yes
Magnesium chloride (1 related to Magnesium)	7786-30-3	Yes¹	Yes1	Yes¹	No	Yes¹	Yes¹

#### Other Regulations

#### A: General Product Information

All components are on the U.S. EPA TSCA Inventory List.

B: Component Analysis - Inventory

Component	CAS#	TSCA	DSL	EINECS
Magnesium nitrate	10377-60-3	Yes	Yes	Yes
5-Chloro-2-methyl-3-isothiazolone	26172-55-4	Yes	Yes	Yes
2-Methyl-3-isothiazolone	2682-20-4	Yes	Yes	Yes
Magnesium chloride	7786-30-3	Yes	Yes	Yes

### C: Component Analysis - WHMIS IDL

No components are listed in the WHMIS IDL.

Code: 236526

Product Trade Name: KATHON® 886 MW BIOCIDE

### \* \* \* Section 16 - Other Information \* \* \*

NFPA Ratings: Health: 3 Fire: 0 Reactivity: 0 Other:

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

HMIS Ratings: Health: 3 Fire: 0 Reactivity: 0 Pers. Prot.:

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe \* = Chronic hazard

Kev/Leaend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; NFPA = National Fire Protection Association; HMIS = Hazardous Material Identification System; CERCLA = Comprehensive Environmental Response, Compensation and Liability Act; SARA = Superfund Amendments and Reauthorization Act

The information presented herein is believed to be factual as it has been derived from the works and opinions of persons believed to be qualified experts; however, nothing contained in this information is to be taken as a warranty or representation for which Henkel Surface Technologies bears legal responsibility. The user should review any recommendations in the specific context of the intended use to determine whether they are appropriate.

Contact: Sulinda Leffingwell Contact Phone: (248) 583-9300

This is the end of MSDS # 236526

Code: 236526

Material Name: ME-50 ID: 236030

# \* \* \* Section 1 - Chemical Product and Company Identification \* \* \*

# **Product Trade Name ME-50 Manufacturer Information**

Henkel Surface Technologies Henkel Corporation 32100 Stephenson Highway Madison Heights, MI 48071

(248) 583-9300

(800) 424-9300

# \* \* \* Section 2 - Composition / Information on Ingredients \* \* \*

CAS#	Component	Percent
Not Available	Surfactants	1-10

## \*\* Section 3 - Hazards Identification \*\*\*

## **Emergency Overview:**

WARNING! This product is severely irritating to the eyes. This product may cause irritation to the skin.

#### **Eve Contact:**

This product may be severely irritating to the eyes.

### **Skin Contact:**

This product may cause irritation to the skin.

#### Skin Absorption:

None expected.

#### Ingestion:

Ingestion can cause gastrointestinal irritation, nausea, vomiting and diarrhea.

#### Inhalation:

Inhalation of vapors or mists of the product may be irritating to the respiratory system.

### **Medical Conditions Aggravated by Exposure:**

Pre-existing eye, skin and respiratory disorders.

# \* \* \* Section 4 - First Aid Measures \* \* \*

#### **Eye Contact:**

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

### Skin Contact:

For skin contact, wash immediately with soap and water. If irritation persists, get medical attention.

#### Ingestion:

If the material is swallowed, get immediate medical attention or advice -- Do not induce vomiting.

## Inhalation:

If mist or vapor of this product is inhaled, remove person immediately to fresh air. Seek medical attention if symptoms develop or persist.

### First Aid: Notes to Physician

No additional information available.

# \* \* \* Section 5 - Fire Fighting Measures \* \* \*

Material Name: ME-50

Flash Point: Not applicable

Method Used:

Not applicable

Not applicable

Flammability Non-flammable

ID: 236030

Classification:

Upper Flammable

Not applicable

Lower Flammable Limit (LFL):

Limit (UFL):

# Fire & Explosion Hazards:

This product is an aqueous mixture which will not burn.

# **Decomposition Products:**

None.

## **Extinguishing Media:**

Use any media suitable for the surrounding fires.

# Fire-Fighting Instructions:

Firefighters should wear full protective clothing including self contained breathing apparatus.

Section 6 - Accidental Release Measures

#### **Containment Procedures:**

Stop the flow of material, if this is without risk. Wear appropriate protective equipment and clothing during clean-

## Clean-Up Procedures:

Absorb spill with inert material. Shovel material into appropriate container for disposal. Dispose of collected material according to regulation.

Section 7 - Handling and Storage

### **Handling Procedures:**

Avoid contact with eyes, skin and clothing. Do not take internally. For industrial use only.

## Storage Procedures:

Keep container tightly closed and in a cool, well-ventilated place away from incompatible materials.

Section 8 - Exposure Controls / Personal Protection \* \* \*

### **Exposure Guidelines:**

## A: General Product Information

Follow all applicable exposure limits.

## **B: Component Exposure Limits**

ACGIH, OSHA, and NIOSH have not developed exposure limits for any of this product's components.

#### **Engineering Controls:**

Ventilation should effectively remove and prevent buildup of any vapor or mist generated from the handling of this product.

# PERSONAL PROTECTIVE EQUIPMENT

As prescribed in the OSHA Standard for Personal Protective Equipment (29 CFR 1910.132), employers must perform a Hazard Assessment of all workplaces to determine the need for, and selection of, proper protective equipment for each task performed.

### **Eyes/Face Protective Equipment:**

Wear chemical goggles.

#### Skin Protection:

Use impervious gloves. Gloves should be tested to determine suitability for prolonged contact. Use of impervious apron and boots are recommended.

### **Respiratory Protection:**

If ventilation is not sufficient to effectively prevent buildup of aerosols or vapors, appropriate NIOSH/MSHA respiratory protection must be provided.

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Material Name: ME-50 ID: 236030

# **Work Practices:**

Eye wash fountain and emergency showers are recommended.

# \* \* \* Section 9 - Physical & Chemical Properties \* \* \*

Physical State: Liquid

Odor: Surfactant

Vapor Density: As water

Specific Gravity: 1.0-1.1

Viscosity: Not applicable Solubility Water: Complete

Percent Volatile: Not applicable

Appearance: Colorless

Vapor Pressure: Not determined Boiling Point: >210 °F (>98.9 °C)

**pH**: 6

VOC: Not applicable

Evaporation Rate: As water
Percent Solids: Not applicable

# \* \* \* Section 10 - Chemical Stability & Reactivity Information \* \* \*

## **Chemical Stability:**

Stable under normal conditions.

#### **Conditions to Avoid:**

None expected.

# incompatibility:

This product may react with strong reducing agents. This product may react with strong oxidizing agents.

# **Decomposition Products:**

Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.

# **Hazardous Polymerization:**

Will not occur.

# \* \* Section 11 - Toxicological Information \* \* \*

### **Acute Toxicity:**

#### A: General Product Information

No information available for the product.

# B: Component Analysis - LD50/LC50

No LD50/LC50's are available for this product's components.

# Carcinogenicity:

#### A: General Product Information

No information available for the product.

# **B: Component Carcinogenicity**

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

#### **Epidemiology:**

No information available for the product.

## **Neurotoxicity:**

No information available for the product.

#### Mutagenicity:

No information available for the product.

#### **Teratogenicity:**

No information available for the product.

# Other Toxicological Information:

None available.

Material Name: ME-50 ID: 236030

# \* \* \* Section 12 - Ecological Information \* \* \*

### **Ecotoxicity:**

#### A: General Product Information

No data available for this product.

# **B: Component Analysis - Ecotoxicity - Aquatic Toxicity**

No ecotoxicity data are available for this product's components.

#### **Environmental Fate:**

No data is available concerning the environmental fate, biodegradation or bioconcentration for this product.

# \* \* \* Section 13 - Disposal Considerations \* \* \*

### **US EPA Waste Numbers & Descriptions:**

#### A: General Product Information

Material, if discarded, is not expected to be a characteristic hazardous waste under RCRA.

# **B: Component Waste Numbers**

No EPA Waste Numbers are applicable for this product's components.

### **Disposal Instructions:**

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

# \* \* \* Section 14 - Transportation Information \* \* \*

#### **US DOT Information**

**Shipping Name:** Please refer to the container label for transportation information.

# \* \* \* Section 15 - Regulatory Information \* \* \*

## **US Federal Regulations**

### A: General Product Information

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

#### **B: Component Analysis**

None of this products components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No Reactive: No

## State Regulations

## A: General Product Information

No additional information available.

#### B: Component Analysis - State

None of this product's components are listed on the state lists from CA, FL, MA, MN, NJ, or PA.

### Other Regulations

### A: General Product Information

All components are on the U.S. EPA TSCA Inventory List.

# **B: Component Analysis - WHMIS IDL**

No components are listed in the WHMIS IDL.

# \* \* \* Section 16 - Other Information \* \* \*

NFPA Ratings: Health: 2 Fire: 0 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

HMIS Ratings: Health: 2 Fire: 0 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe \* = Chronic hazard

Material Name: ME-50 ID: 236030

# Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; NFPA = National Fire Protection Association; HMIS = Hazardous Material Identification System; CERCLA = Comprehensive Environmental Response, Compensation and Liability Act; SARA = Superfund Amendments and Reauthorization Act

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Contact: Regulatory Affairs and Product Acceptance

Contact Phone: (248) 583-9300

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nitric acid - 42 baume 31%

UNIVAR USA - MSDS Univar USA Inc. 17425 NE Union Hill Road Redmond, WA 98052 (425) 889-3400

For Emergency Assistance involving chemicals call - CHEMTREC (800) 424-9300

The Version Date and Number for this MSDS is: 08/18/2005 - #005

PRODUCT NAME:

NITRIC ACID 50-70%

MSDS NUMBER:

MZN3660

DATE ISSUED:

8/17/2005

SUPERSEDES:

7/19/2002

ISSUED BY:

008614

NITRIC ACID, 50-70%

#### 1. PRODUCT IDENTIFICATION

AQUA FORTIS; AZOTIC ACID; NITRIC ACID 50%; NITRIC ACID SYNONYMS:

65%; NITRIC ACID 69-70% CAS NO: 7697-7697-37-2 MOLECULAR WEIGHT: 63.01 CHEMICAL FORMULA: HNO3

Distributed by: Univar USA Inc. 6100 Carillon Point Kirkland, WA 98033 425-889-3400

#### 2. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT	CAS NO	PERCENT	HAZARDOUS
NITRIC ACID	7697-37-2	50 - 70%	YES
WATER	7732-18-5	30 - 50%	NO

### 3. HAZARDS IDENTIFICATION

#### **EMERGENCY OVERVIEW**

POISON! DANGER! STRONG OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE. CORROSIVE. LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. MAY BE FATAL IF SWALLOWED OR INHALED. INHALATION MAY CAUSE LUNG AND TOOTH DAMAGE.

POTENTIAL HEALTH EFFECTS

Page 1

#### nitric acid - 42 baume 31%

NITRIC ACID IS EXTREMELY HAZARDOUS; IT IS CORROSIVE, REACTIVE, AN OXIDIZER, AND A POISON.

#### INHALATION:

CORROSIVE! INHALATION OF VAPORS CAN CAUSE BREATHING DIFFICULTIES AND LEAD TO PNEUMONIA AND PULMONARY EDEMA, WHICH MAY BE FATAL. OTHER SYMPTOMS MAY INCLUDE COUGHING, CHOKING, AND IRRITATION OF THE NOSE, THROAT, AND RESPIRATORY TRACT.

#### INGESTION:

CORROSIVE! SWALLOWING NITRIC ACID CAN CAUSE IMMEDIATE PAIN AND BURNS OF THE MOUTH, THROAT, ESOPHAGUS AND GASTROINTESTINAL TRACT.

#### SKIN CONTACT:

CORROSIVE! CAN CAUSE REDNESS, PAIN, AND SEVERE SKIN BURNS. CONCENTRATED SOLUTIONS CAUSE DEEP ULCERS AND STAIN SKIN A YELLOW OR YELLOW-BROWN COLOR.

#### EYE CONTACT:

CORROSIVE! VAPORS ARE IRRITATING AND MAY CAUSE DAMAGE TO THE EYES. CONTACT MAY CAUSE SEVERE BURNS AND PERMANENT EYE DAMAGE.

#### CHRONIC EXPOSURE:

LONG-TERM EXPOSURE TO CONCENTRATED VAPORS MAY CAUSE EROSION OF TEETH AND LUNG DAMAGE. LONG-TERM EXPOSURES SELDOM OCCUR DUE TO THE CORROSIVE PROPERTIES OF THE ACID.

#### AGGRAVATION OF PRE-EXISTING CONDITIONS:

PERSONS WITH PRE-EXISTING SKIN DISORDERS, EYE DISEASE, OR CARDIOPULMONARY DISEASES MAY BE MORE SUSCEPTIBLE TO THE EFFECTS OF THIS SUBSTANCE.

#### 4. FIRST AID MEASURES

IMMEDIATE FIRST AID TREATMENT REDUCES THE HEALTH EFFECTS OF THIS SUBSTANCE.

#### INHALATION:

REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. CALL A PHYSICIAN.

#### **INGESTION:**

DO NOT INDUCE VOMITING! GIVE LARGE QUANTITIES OF WATER OR MILK IF AVAILABLE. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. GET MEDICAL ATTENTION IMMEDIATELY.

#### SKIN CONTACT:

IN CASE OF CONTACT, IMMEDIATELY FLUSH SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. WASH CLOTHING BEFORE REUSE. THOROUGHLY CLEAN SHOES BEFORE REUSE. GET MEDICAL ATTENTION IMMEDIATELY.

# EYE CONTACT:

IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES, LIFTING LOWER AND UPPER EYELIDS OCCASIONALLY. GET MEDICAL ATTENTION IMMEDIATELY.

#### 5. FIRE FIGHTING MEASURES

#### FIRE:

NOT COMBUSTIBLE, BUT SUBSTANCE IS A STRONG OXIDIZER AND ITS HEAT OF Page 2

#### nitric acid - 42 baume 31%

REACTION WITH REDUCING AGENTS OR COMBUSTIBLES MAY CAUSE IGNITION. CAN REACT WITH METALS TO RELEASE FLAMMABLE HYDROGEN GAS.

#### **EXPLOSION:**

REACTS EXPLOSIVELY WITH COMBUSTIBLE ORGANIC OR READILY OXIDIZABLE MATERIALS SUCH AS: ALCOHOLS, TURPENTINE, CHARCOAL, ORGANIC REFUSE, METAL POWDER, HYDROGEN SULFIDE, ETC. REACTS WITH MOST METALS TO RELEASE HYDROGEN GAS WHICH CAN FORM EXPLOSIVE MIXTURES WITH AIR.

#### FIRE EXTINGUISHING MEDIA:

WATER SPRAY MAY BE USED TO KEEP FIRE EXPOSED CONTAINERS COOL. DO NOT GET WATER INSIDE CONTAINER.

#### SPECIAL INFORMATION:

INCREASES THE FLAMMABILITY OF COMBUSTIBLE, ORGANIC AND READILY OXIDIZABLE MATERIALS. IN THE EVENT OF A FIRE, WEAR FULL PROTECTIVE CLOTHING AND NIOSH-APPROVED SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN THE PRESSURE DEMAND OR OTHER POSITIVE PRESSURE MODE.

#### ACCIDENTAL RELEASE MEASURES

VENTILATE AREA OF LEAK OR SPILL. WEAR APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT AS SPECIFIED IN SECTION 8. ISOLATE HAZARD AREA. KEEP UNNECESSARY AND UNPROTECTED PERSONNEL FROM ENTERING. CONTAIN AND RECOVER LIQUID WHEN POSSIBLE. NEUTRALIZE WITH ALKALINE MATERIAL (SODA ASH, LIME), THEN ABSORB WITH AN INERT MATERIAL (E. G., VERMICULITE, DRY SAND, EARTH), AND PLACE IN A CHEMICAL WASTE CONTAINER. DO NOT USE COMBUSTIBLE MATERIALS, SUCH AS SAW DUST. DO NOT FLUSH TO SEWER! US REGULATIONS (CERCLA) REQUIRE REPORTING SPILLS AND RELEASES TO SOIL, WATER AND AIR IN EXCESS OF REPORTABLE QUANTITIES. THE TOLL FREE NUMBER FOR THE US COAST GUARD NATIONAL RESPONSE CENTER IS (800) 424-8802.

J. T. BAKER NEUTRASORB(R) OR TEAM(R) 'LOW NA+' ACID NEUTRALIZERS ARE RECOMMENDED FOR SPILLS OF THIS PRODUCT.

RECOMPLED FOR SPILES OF THIS PRODUCT.

#### 7. HANDLING AND STORAGE

STORE IN A COOL, DRY, VENTILATED STORAGE AREA WITH ACID RESISTANT FLOORS AND GOOD DRAINAGE. PROTECT FROM PHYSICAL DAMAGE. KEEP OUT OF DIRECT SUNLIGHT AND AWAY FROM HEAT, WATER, AND INCOMPATIBLE MATERIALS. DO NOT WASH OUT CONTAINER AND USE IT FOR OTHER PURPOSES. WHEN DILUTING, THE ACID SHOULD ALWAYS BE ADDED SLOWLY TO WATER AND IN SMALL AMOUNTS. NEVER USE HOT WATER AND NEVER ADD WATER TO THE ACID. WATER ADDED TO ACID CAN CAUSE UNCONTROLLED BOILING AND SPLASHING. CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTY SINCE THEY RETAIN PRODUCT RESIDUES (VAPORS, LIQUID); OBSERVE ALL WARNINGS AND PRECAUTIONS LISTED FOR THE PRODUCT.

#### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

AIRBORNE EXPOSURE LIMITS:

-OSHA PERMISSIBLE EXPOSURE LIMIT (PEL):

2 PPM (TWA), 4 PPM (STEL)

-ACGIH THRESHOLD LIMIT VALUE (TLV):

2 PPM (TWA); 4 PPM (STEL)

#### **VENTILATION SYSTEM:**

A SYSTEM OF LOCAL AND/OR GENERAL EXHAUST IS RECOMMENDED TO KEEP EMPLOYEE EXPOSURES BELOW THE AIRBORNE EXPOSURE LIMITS. LOCAL EXHAUST VENTILATION IS Page 3

# **ATTACHMENT 6**

Contractor Health and Safety Requirements

# REXAM

# **Basic Contractor Safety Rules**

All Contractors, Sub-Contractors and their employees are required to adhere to the following safety rules:

- Each day, the Contractor must be given permission to begin work by the plant representative.
- All contractors working on-site must review all Rexam safety rules and regulations and sign and return the Rexam Visitor's Agreement form (see attachment).
- All proper safety procedures required by state and federal standards must be followed as well as all local, state, and federal laws.
- The contractor must advise Rexam of any unique hazards presented by their work and any hazards identified during the course of work. The contractor is required to have a competent person in their work area.
- The contractor must ensure that all contractor personnel (including all subcontractors) attend a safety orientation before beginning any work. This orientation must include all Rexam safety rules, contractor specific safety rules, and any job health and safety requirements including hazards the contractor activity may generate. Documentation of orientation must be provided to Rexam. Contactor is responsible to ensure their employees and subs follow these health and safety requirements while on-site.
- All contractor personnel must be familiar with Rexam's Emergency plans and evacuation procedures (see plant map).
- All contractor personnel must be familiar with fire hazards and chemical hazards related to the contractor's work and in the contractor's work area.
- Prior to starting work, contractor's personnel must be familiar with all local emergency numbers.
- All contractors must sign in at the beginning of each day, so a complete list
  of occupants in the facility is known in the event of an emergency. The
  sign-in sheets must be turned in to the front office.

- All contractor vehicles are required to park in designated contractor parking area.
- The assigned contractor parking area is expected to be kept clean and free of debris including cigarette butts.
- Contractors are responsible for the safe operation of their vehicles in and around the facility.
- Contractor employee access will be through the designated doors adjacent to assigned contractor work areas only (see facility map).
- Contractor work areas will be specifically assigned (see attached facility map). These areas must be roped off for contractor use only. Unless specifically instructed by a Rexam supervisor, Rexam employees are not allowed to go inside these areas.
- All contractors will be required to maintain the housekeeping standards in their assigned work areas. All waste and trash shall be kept in covered containers supplied by contractor. Contractors are responsible for the removal of all trash, waste, and debris from the facility. Dumping waste into sewers or on plant grounds is forbidden.
- All contractor materials, supplies, and tools must be stored in compliance with plant housekeeping standards. This includes nothing within two feet of any wall and all items have to be off the floor, stored on a pallet.
- When the contractor is finished and vacates and returns an assigned area back to the plant, the area is expected to be in a clean condition. This includes the condition of the plant floor and building structure.
- Repair of any damage to/in facility caused by the contractor is the responsibility of the contractor. This includes floor coatings and surfaces.
- Contractors must submit Material Data Safety Sheets for all materials, prior to delivery to site. Rexam reserves the right to limit or forbid the use of any material. All materials must be properly labeled as to contents and hazards. Materials designated as Forbidden by Rexam (see attached "List of Strictly Forbidden Materials") cannot be used and should never be brought on site.

- Empty beverage cans, coffee cans, etc are not to be used for storage of materials or liquids. Rexam's pallets and dunnage are not to be used by contractors.
- Deliveries requiring shipping dock access must be pre-approved and arranged through Rexam shipping manager.
- Rexam employees are not allowed to assist with moving, loading, or unloading contractor equipment or property.
- Use of shop equipment, lift trucks, man lifts, or any Rexam equipment by contractors is forbidden.
- The contractor is required to supply all tools, equipment, ladders, and scaffolds. These must meet applicable OSHA 1910 and 1926 standards. The contractor is responsible for its safe storage in a location that shall not be detrimental to the plant operation. All ladders should be non-conductive with approved safety feet.
- All deliveries to contractors of parts and materials are to be received by a
  qualified representative of the contractor. Rexam personnel are not
  allowed to sign for, receive, or be liable for a delivery.
- No smoking is allowed inside or outside the facility except in the designated area Proper disposal of cigarette butts is required.
- No eating of food is allowed anywhere in facility except in the designated break room.
- No packaged beverages are allowed except in designated break room.
- Personal protective equipment is required to be worn in the facility at all times hard hats when appropriate, leather or appropriate work gloves, approved ear protection, safety glasses with side shields, hats or hairnets. Slip-resistant safety shoes with a rating of 0.5 or greater (wet or dry) on the James, Brungraber Mark 2, or SATRA Tests are required at all times.
- No jewelry is allowed to be worn at any time. This includes rings, watches, bracelets, and necklaces.
- No loose clothing or neck ties. Wearing of Bermuda shorts, leotards, tank tops, or other abbreviated clothing is prohibited.

- Contractors must be properly equipped to handle emergencies and rescue of their employees should the need arise.
- Contractor must provide all specific safety equipment necessary to perform their job. Work cannot begin until such equipment is in place and ready for use.
- Contractors must insure all assigned employees are trained to safely perform their assigned tasks.
- All hot work must be approved and permit obtained as per discussions during the work safety briefing. The work must be fully shielded from other personnel working in the area. The contractor must provide a fire watch.
- Line breaking must be approved and permit obtained through maintenance department.
- Contractor is required to provide all personnel, safety, and monitoring equipment for confined space entries.
- Lock out / tag out procedures must be followed. All powered press procedures must be followed including usage of proper die blocks.
- No machine or equipment is to be operated when guards are not in place or other safety devices are not operating.
- Safety harnesses are required for operators of all boom lifts. Standing or climbing on rails of any aerial lift is forbidden.
- Only qualified trained operators are to operate equipment such as forklifts and man lifts. Seat belts are required to be used on all forklifts. Riders are not allowed on any moving equipment not designated for riders.
- A walking escort shall be provided when moving boom lifts. Boom lifts shall be moved only with boom in the lowered position. When boom lift is in the raised position, area below lift must be roped off.
- When working overhead, reasonable safety precautions must be taken to prevent injuries to personnel working below in that area.
- No tools, paint containers, bolts, debris, etc are to be left in overhead areas such as sitting on trusses, ducts, etc; also, whenever work is necessary over or around the product being produced proper precautions to protect

the integrity of the product quality must be implemented and must have Plant Management approval.

- Excavations must be guarded by barriers and at night, by lights. All openings in the ground or floor (such as open manholes, valve pits, and sewers) into which anyone might fall, must be properly guarded. Excavations, pits, and trenches must be shored to prevent cave-ins on workers.
- Use of explosives is prohibited.
- No tools operated by explosives are permitted.
- No unauthorized employees are permitted to open or work in electrical control panels, switchgear, or other related equipment. Authorization to work in electrical panels must be obtained in conjunction with the Rexam contact.
- Compressed air will not be used for blowing off clothing or for cooling purposes. All open-air nozzles must comply with OSHA safety guidelines.
- If a Rexam fire extinguisher is used, notify Rexam supervisor immediately for replacement.
- All contractor materials, skids, cartons, etc. must be stored or stacked in a safe manner. Empty pallets should not be stacked more than four feet high.
- All pressure cylinders shall be on, and chained to, approved carriers
- The contractor shall contain all dust and fumes resulting from work in a manner acceptable to Rexam.
- The contractor's supervisor must inspect all assigned contractor areas at the end of each day and correct any unsafe conditions or housekeeping issues before leaving the site.
- Upon completion of job, all machine guarding must meet the OSHA 1910.217 requirements.
- Possession or use of firearms, radios, cameras, alcoholic beverages, and drugs on Rexam property is prohibited.
- No one under the influence of alcohol or drugs will be allowed on Rexam property.

- Horseplay, practical jokes, and fighting are forbidden.
- Employees must be alert to conditions that may cause accidents:
  - o Keep aisles, doorways, firefighting equipment, and platforms clear
  - o Keep work areas clear and clean.
  - o Clean up spilled oil, solvents, grease, etc. immediately.
- The contractor shall immediately report any accidents or incidents involving the contractor's employees, subs, or any equipment. The contractor is required to conduct a documented investigation of accident or near miss. A copy of all documentation must be forwarded to Rexam contact. The contractor, their employees, and subs may also be required to participate in a Rexam sponsored accident investigation.
- In the event of a plant evacuation, all contractors are required to walk to their designated assembly area.
- In the event of a tornado, seek shelter in an interior office or enclosed area.
- The contractor shall not obstruct or hinder the daily routine or operation in the facility.

I have read and discussed the above with the Rexam representative and understand that it is my responsibility to inform and control personnel under my supervision and insure compliance with Rexam safety and security procedures while on Rexam property. Should my workers or sub-contractors be on site without me, a substitute supervisor will review and sign this sheet prior to the start or continuance of work. Violations of these rules may result in ejection from the plant.

Contractor (Print)	Contractor (Sign)	Date

Copies: Rexam representative, Contractor, Plant Management

# REXAM

# **VISITOR'S AGREEMENT**

## PLEASE READ AND SIGN THE FOLLOWING AGREEMENT

I hereby agree (both personally and on behalf of my employer) that I will maintain in complete confidence, and not use, except for the particular business which is the reason for the visit, such proprietary information which I may be made aware of during or as a result of visits to REXAM Beverage Can.

I also agree (both personally and on behalf of my employer) to observe and strictly follow, while on the premises, all REXAM Beverage Can regulations and procedures regarding conduct and safety and to release and hold harmless REXAM Beverage Can from and against any claim for personal injury, death or property damage occurring to me while on or about REXAM Beverage Can premises, regardless of the cause thereof.

Date: _	
Company: _	
Name: _	(print name)
Signature: _	



# **Contractor Pre-Job Hazard Review**

Date:_		Location:_		
Purch	ase Order Number:			
Contro	actor:			
Super	visor:			
	ct Description:			
·	·			
	Personal Protective Equipment		Lockout/Tagout & Line Breaking	
	Plant Entry		Hot Work	
	Location of MSDS		Ladders/Mobile	
			Platforms/Scaffolds	
	Vehicle rules		Forklifts	
	Permit Confined Space Entry		Contractor Employee Conduct	
Incide	nt Reporting to:	-		
_				
Evacu	ation muster point:			
Numb	per of employees in crew:			
Work	areas:			
Lay do	own areas:			
Utilitie	s available:□ 110V □ Electric	□ Water	☐ Air (60 psi) ☐ Other	
Other	safety precautions pertinent to	work:		
Availa	able break/smoke areas:			
<u> </u>	,, <b>f</b> 1			
Condition of work area upon arrival:				

The Contractor is <u>required to submit</u> a copy of the Contractor's Safety, Health and Environmental manual, and associated training records, addressing the following items:

Company Statement, Policy and Safety Directory

Drug and Alcohol Abuse Policy

Safety, Health and Environmental Objective

Organization and Responsibilities

**Process Safety Management** 

Safety Orientation, Education and Training

Records and Reports Procedures

Safe Program and JSA – Job Safety Analysis

Incident Investigation Procedures

General Safety, Health and Environmental Rules

First Aid and Medical Procedures

**Emergency Action Plan** 

Personal Protective Equipment

Clothing Requirements

Health and Sanitation

Fire Protection and Prevention

Housekeeping and Clean-up

Material Handling, Storage and Use

Flammable and Combustible Liquids

Tools

Signs, Signals and Barricades

Competent Person

**Excavation and Trenching** 

Scaffolding and Ladders

Electrical, Lighting and Heating

Lockout/Tagout

Temporary Floors, Stairs, Railings and Toeboards

Mechanical, Vehicles, Mobile Equipment and Cranes

- Aerial Lifts
- Cranes
- Forklifts
- Backhoes/Front End Loader
- Vehicles

Steel Erection General Requirements
Rigging – Chains, Slings, Manila and Wire rope

Welding and Cutting

Concrete and Masonry
Demolition
Craft Safety Rules
Industrial Hygiene Procedures

Con	tractor is:
	Accepted for Approved Contractor List
	Conditionally Accepted for Approved Contractor List with the following conditions:
	Not Accepted for Approved Contractor List
	Evaluator



### LIST OF STRICTLY FORBIDDEN MATERIALS

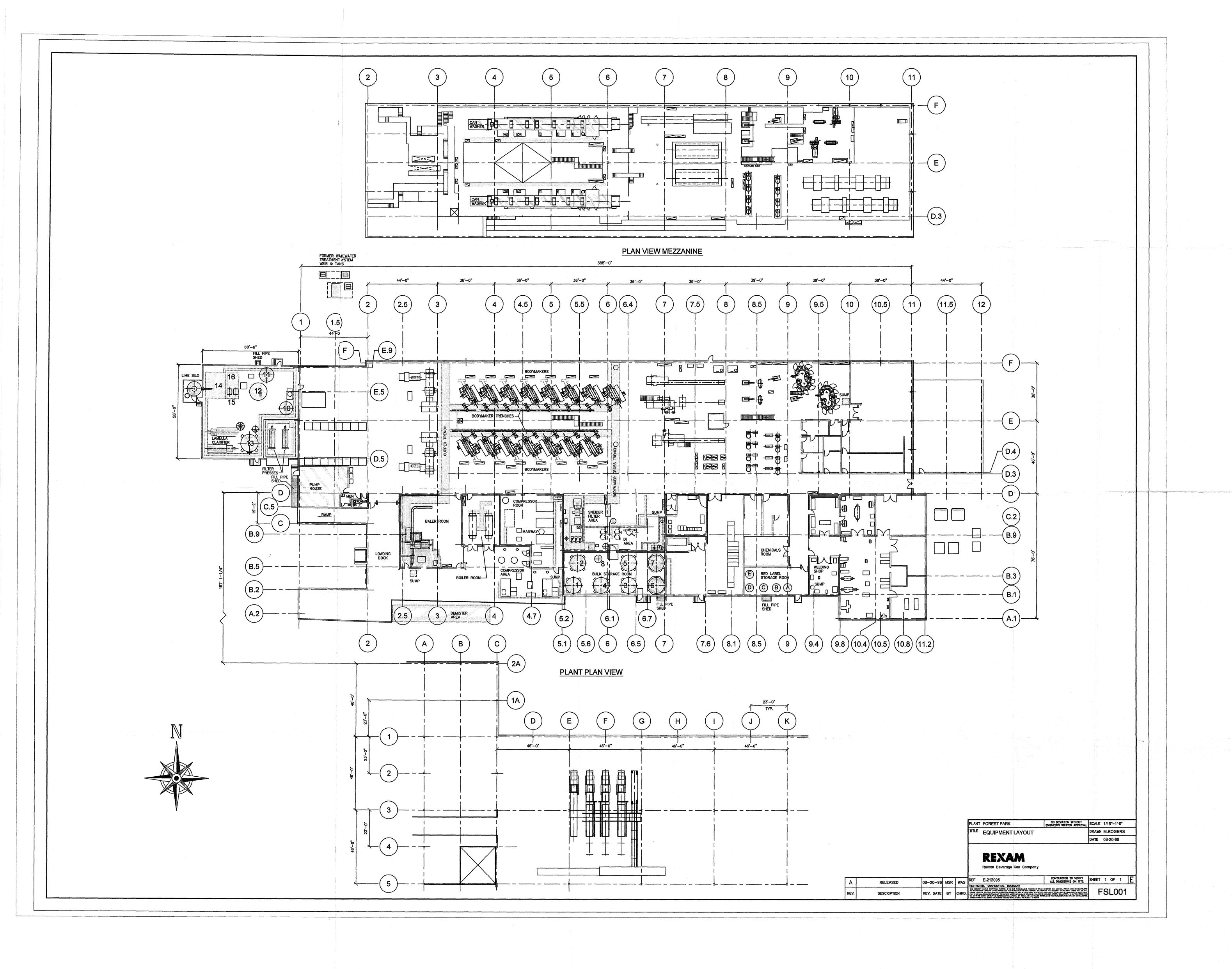
The following list represents those materials which are not to be used under any circumstances in Rexam Beverage Can Americas facilities. Materials included are those presenting an unacceptable risk to people, the environment, the equipment, or the product. All process-related materials used must be approved by BCNA EHS and Process Engineering prior to use. CAS No. in parentheses.

## **OSHA Carcinogens**

4-Nitrobiphenyl (92-93-3)
alpha-Naphthylamine (134-32-7)
methyl chloromethyl ether (107-30-2)
3, 3'-Dichlorobenzidine (and its salts) (91-94-1)
bis-Chloromethyl ether (54-28-81)
beta-Naphthylamine (91-59-8)
Benzidine (92-87-5)
4-Aminodiphenyl (92-67-1)
Ethyleneimine (151-56-4)
beta-Propiolactone (57-57-8)
2-Acetylaminofluorene (53-96-3)
4-Dimethylaminoazo-benezene (60-11-7)
N-Nitrosodimethylamine (62-75-9)

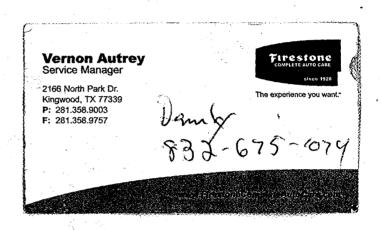
#### **Others**

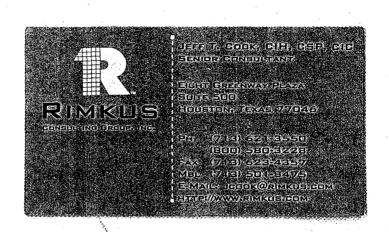
Asbestos
PCB's
CFC's
Carbon Tetrachloride (58-23-5)
Methylene Chloride (75-09-2)
Perchloroethylene (127-18-4)
1,1,1- Trichloroethane (71-55-6)
Tetrahydrofuran (109-99-9)
Vinyl Chloride (75-01-4)
Toluene (108-88-3)
Methyl Ethyl Ketone (78-93-3)
Silicone-containing materials (caulk/sealants excluded)



EPAHO048002383

Misc, Contancts Tanks Etc







Dettie Roe
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Phone (713) 924-6400 Fax (713) 924-6417
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Cell 27 - 757 - 6924

Houston Plating
Navigation
5/4/01 Friday
8:30 Am
BOO gals DN30
PO 3966
5/11/02 may 13 500
8:30 Am may 13 500
8:30 Am DN30
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12 argals DN 30 moorgie
PO 3967 Fairs



# **Glenn Pitts**

5006 Railroad Avenue Deer Park, TX 77536

> tel 281.479.9696 fax 281.479.9699 cell 281.960.2712

email gpitts@onesourceindustrial.com





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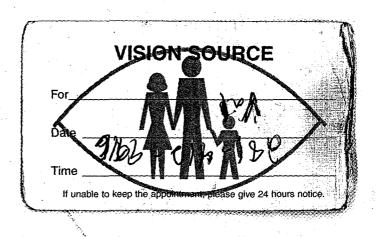
VISION SOURCE! www.visionsource-Deerbrook.com

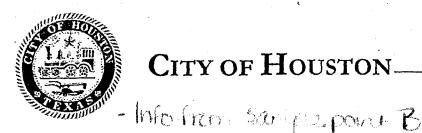
10:00 Am

DR. KEVIN L. McCULLOUGH
Therapeutic Optometrist
Friday 9/24

2232 Deerbrook Mall Humble, Texas 77338

9/25/06 Tel. (281) 446-5800 Fax (281) 446-3105





Communication

# CITY OF HOUSTON.

Bill White

Mayor

Michael S. Marcotte, P.E., DE Director Public Works & Engineering Department Industrial Wastewater Service 10500 Bellaire Blvd. Houston, Texas 77072

T. 281.575.2800 F. 281.983-6704 www.cityofhouston.gov

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### HAND DELIVERY FOLLOWED BY CERTIFED MAIL-RETURN RECEIPT

February 9, 2007

Matt Bowman, President CES Environmental, Inc 4904 Griggs Road Houston, Texas 77021

Disconnection of utility service on February 19, 2007 at CES Environmental, Inc., 4904 Griggs Road, Houston, Texas (water account 5010-0030-201, 0920-2370-109 and 0920-2370-113).

The City of Houston has been investigating a number of issues regarding CES's discharge to the sanitary sewer. The City alleges that CES violated City ordinances and their industrial waste operating permit No. 9558 for industrial waste discharge to the City's sanitary sewer. These violations are as follows:

1. CES discharged pollutants in violation of their permit limits, specifically as follows (see sampling detail in attachment H):

Date	Oil and Grease / Limit 400 (mg/l)	Zinc composite limit 3.0 (mg/l)	Nickel Composite Limit 2.0 (mg/l)
11/14/06	841	15.39	
11/15/06	752	10.00	If we had him can now as
11/20/06	690	4.97	Wenkele Termin
11/21/06		13.50	*
11/22/06	536	18.80	- Westimment agains, - chapery
11/23/06	1050	12.80	
11/25/06	598	7.00	OIL Mudoust registrate
11/27/06	•	8.17	
11/28/06	•	; <b>3.9</b> 3	
11/30/06	848	3.06	
12/01/06	824	13.20	

Toni Lawrence Jarvis Johnson Anne Clutterbuck Ada Edwards Addie Wiseman M.J. Khan, P.E. Pam Holm Carol Alvarado Peter Brown Sue Lovell Ronald C. Green Michael Berry Controller: Annise D. Parker

	4	6.76	2600	12/02/06
		6.76	712	12/03/06
		13.90	637	12/05/06
		9.10		12/06/06
		4.04	786	12/07/06
			634	12/09/06
		4.03	1400	12/10/06
		6.41	3100	12/11/06
36.60	·	145.00	844	12/12/06
		8.82	1260	12/13/06
		9.30		12/15/06
		3.54	410	12/19/06

2. CES discharged pollutants not authorized by their operating permit in violation of the standard of quality provisions of Section 47-194 of the Industrial Waste Ordinance and in such concentrations that could endanger the health and safety of the City's workers in the collection system. Those pollutants include but are not limited to the following (see sampling detail in attachment H):

Date	2-Butanone (mg	/L) Acetone (mg/L)	Phenol (m	DEAT) STANFORM
11/14/06			2300.0	Mark I have
11/22/06		* ·	172.0	terred red
11/23/06			128.0	
11/25/06			28.1	Marie Comment
11/26/06	• •		18.4	A Company of the Comp
12/05/06	518	161	•	Market .
12/06/06			72.8	
12/12/06			51.3	
12/13/06			19.9	

3. CES discharged pollutants not authorized by their operating permit in violation of the standard of quality provisions of Section 47-194 of the Industrial Waste Ordinance. This discharge was in concentrations that inhibited treatment at our Sims Bayou wastewater plants which caused the City to violate its discharge permit from the Texas Commission on Environmental Quality. Those pollutants discharged include but are not limited to the following (see sampling detail in attachment H):

Date	Phenol (mg/L)
11/14/06	2300.0
11/15/06	36.5
11/22/06	172.0
11/23/06	128.0
11/25/06	28.1
11/26/06	18.4
12/06/06	72.8
12/12/06	51.3
12/13/06	19.9

Council Members: Toni Lawrence Jarvis Johnson Anne Clutterbuck Ada Edwards Addie Wiseman M.J. Khan, P.E. Pam Holm Adrian Garcia Carol Alvarado Peter Brown Sue Lovell Ronald C. Green Michael Berry Controller; Annise D. Parker

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4. CES diluted the BOD and TSS samples at City's sample point # 1which is the discharge from the centralized waste treatment facility to avoid a surcharge on their BOD and TSS. CES underpaid the City \$ 480,589.59 on water account # 5010-0030-201 (CWT discharge meter) during the period of December 2005 through January 2007 due to this dilution. The details are as follows: (see sampling detail in attachment H and surcharge calculation worksheet attachment B):

	BOD	TSS	Rate per
Time period	Avg. (mg	/1) Avg.	(mg/l) 1,000 gal.
Prior to 11-2006 investigation (sample point. # 1)	220	120	\$4.64
After 11-2006 investigation (sample point #1)	1,499	160	\$5.55
11-13-06 to 12-21-06 (Manholes downstream from CWT)	10,288	1,334	\$25.30

The City has determined based on televising the sewer lines on Griggs Road to a point three manholes downstream of the main driveway to CES that there are no other connections on Griggs Road to our sanitary sewer system other than CES's connection for the CWT facility. The televising of sewer lines in Wayland also revealed that CES is the only customer connected to our sewer lines on Wayland. Samples obtained by the City in the 3 manholes downstream of CES's driveway on Griggs Road are representative of CES's discharge. Therefore, the sampling the City conducted in the manholes is representative of CES's discharge and not the diluted samples at sample point # 1. As an example for visual evidence of dilution see attachment C which are photos of a 24 hour composite sample from point # 1 compared to the manhole downstream collected during the same time period. The CWT 24-hour composite sample is virtually clear water and the 24-hour composite sample from the manhole downstream is dark in color. We have numerous photos on different dates visually demonstrating this dilution. As further evidence, when reviewing the data on attachment H, there is a clear pattern with numerous days of dilution when you compare analytical results from sample point # 1 against the results in the manholes. The only way this could happen is by the addition of clear potable water to the plastic sample container at sample point # 1 (see attachment D) where the City's composite sampler was sampling. The long history of low BOD and TSS results from sample point # 1 resulting in no surcharges compared to the high BOD and TSS results we obtained downstream point to intentional dilution and avoidance of surcharges by CES.

5. CES began diluting their total discharge in violation of their permit and the industrial waste ordinance after we initiated our investigation in November 2006 by increasing the use of City water by 369,500 gallons per month for the purpose of diluting the BOD and TSS sampling results. See data listed below and attachment D:

Water acct. # 0920-2370-109 consumption average 8-06 through 11-06 97,500 per month 467,000 per month

Der fant 15 Increase per month after CES was aware of our investigation 369,500

CES started using capacity in the sewer system it was not authorized to use nor did CES pay for the capacity they are using as demonstrated below. (see attachment E for reserved capacity letter authorizing only 3,662 gallons per day):

Council Members: Toni Lawrence Jarvis Johnson Anne Clutterbuck Ada Edwards Addie Wiseman M.J. Khan, P.E. Pam Holm Adrian Garcia Carol Alvarado Peter Brown Sue Lovell Ronald C. Green Michael Berry Controller: Annise D. Parker

Authorized capacity granted by the City = 3,692 gallons per day.

Average gallons per day discharged December 2006 and January 2007 = 216,000 gallons per day.

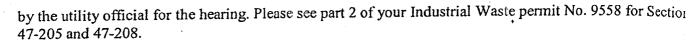
		12-06 Monthly	1-07 Monthly	Average Monthly	
Acct#	Location served	Discharge	Discharge	12-06 to 1-07	
	Effluent meter	3,484,000	4,567,000	4,025,500	
	CWT, vehicle and drum	410,000	524,000	467,000	
0920-2370113	Office/tank truck cleaning	675,000	711,000	<u>693,000</u>	
	sewer discharge per month			5,185,000	
Average discharge gallons per day with 24-day operation per month 216,000					

Analysis of the sanitary sewer lines by the City's Utility Analysis Section of Public Works (the group that reserves and commits the City to capacity to customers) reveals that no additional capacity other than the original 3,692 gallons per day is available on the sanitary sewer lines that serve CES (see attachment A).

- 7. CES's discharge is causing the City's sewer system to surcharge and is responsible for creating overflow conditions downstream from their discharge due to CES's discharge being 58 times higher than what was authorized.
- 8. CES has caused deposition of oil and grease in the City's sewer system by exceeding their oil and grease limit (see sampling detail attachment H). Photos of our sampling equipment show the equipment is covered top to bottom with oil and grease. The sampler was at the top of the manhole downstream from CES approximately eight feet above the top of the sewer line elevation. This demonstrates the manhole surcharged and the oil and grease deposition (see attachment H). Several City employees have observed on a number of occasions the surcharged condition reaching the top of the manholes while CES is discharging.
- 9. CES has discharged slug loadings of pollutants in violation of the slug loading prohibitions in their permit and Section 47-194 of the Industrial Waste Ordinance resulting in the City violating it's operating permit from TCEQ. (see sampling results attachment H). The Sims Bayou South wastewater plant has an influent BOD loading capacity of 59,000 pounds per day at it's TCEQ permitted 30.0 MGD. CES's slug loadings of 19,300 mg/l of BOD at 0.216 MGD (216,000 GPD) is 35,000 pounds of BOD per day or the equivalent of CES using 60% of the organic loading capacity of the plant. In simple terms this converts to the equivalent of CES using 18.0 million gallons per day of the permitted 30 MGD plant at this BOD strength while only having 3,692 gallons per day authorized. (see attachment A)
- 10. CES failed to obtain authorization from the City for increased loadings of flow, organics and solids as required under permit 9558.

Due to the numerous issues listed above demonstrating CES's violation of the City's ordinances and permits for discharge to the City sanitary sewer, we are taking enforcement action in accordance with Article V Chapter 47 Section 47-205 of the City Code of Ordinances. CES's water and wastewater service will be disconnected on February 19, 2007. You are hereby notified of your right under Section 47-208 of the ordinance to appeal this decision within 10 days of this notice. As provided for in Section 47-208, if you appeal this decision to terminate service, the termination of service will be delayed at least until the date set

Council Members: Toni Lawrence Jarvis Johnson Anne Clutterbuck Ada Edwards Addie Wiseman M.J. Khan, P.E. Pam Holm Adrian Garcia Carol Alvarado Peter Brown Sue Lovell Ronald C. Green Michael Berry Controller: Annise D. Parker



If you have any questions, please contact me at (281) 575-2824.

Sincerely;

**Deputy Assistant Director Public Utilities Division** 

Public Works and Engineering Department

BDH/bdh

cc: I.W. permit file No. 9558 Ceil Price

> Jeff Taylor Roger Whitney Willie Horton Gurdip Hyare Susan Karlins Ed Rutland

Acknowledgement of hand delivery receipt:

Matt Bowman
Printed Name of CES Employee

Witness of delivery by City representative:

Bob Hurt 2-9.07 11:30 An Signature Date Time

Council Members: Toni Lawrence Jarvis Johnson Anne Clutterbuck Ada Edwards Addie Wiseman M.J. Khan, P.E. Pam Holm Adrian Garcia Carol Alvarado Peter Brown Sue Lovell Ronald C. Green Michael Berry Controller: Annise D. Parker



# BAILIFF ENTERPRISES, INC.

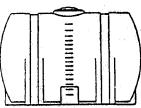
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**TOLL FREE FAX: 877-999-1223** 

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# Horizontal Leg Tanks



3000

5150

6200

**4000 NEW** 

**4200 NEW** 

**7000 NEW** 

10,500 (1.75 SG)

10,500 (1.95 SG)

SIZE (GAL.)	DIA X LENGTH (")	WT (LB)	LID (")	PRICE	TIE DOWNS (EA)
14	14 x 31	8	5	52.00	
25	18 x 36	12	5	62.00	
35	18 x 34	14	5 .	63.75	12.00 2 REQ. STAINLESS
65	24 x 39	35	6	105.00	15.00 2 REQ. STAINLESS
70	24 x 38	40	- 6	125.00	15.00 2 REQ. STAINLESS
125	32 x 44	56	8	166.00	20.00 2 REQ. STAINLESS
165	32 x 53	70	8	198.00	20.00 2 REQ. STAINLESS
220	38 x 52	85	8	241.00	20.00 2 REQ. STAINLESS
335	44 x 56	110	16	295.00	20.00 2 REQ. STAINLESS
535	48 x 76	150	16	372.00	20.00 2 REQ. STAINLESS
735 NEW	48 x 99	245	16	538.00	60.00 3 REQ.
925	62 x 81	290	16	620.00	80.00 2 REQ.
1065	58 x 106	340	16	720.00	70.00 3 REQ.
1800 DUAL COMP	63.5 x 145	600	16	2200.00	BASE & BAND INCL.
2650 NEW 3 COMP	63.5 x 205	870	16	2680.00	BASE & BAND INCL.
FORKLIFTABLE SKID	S AVAILABLE UPON REC	QUEST			

SIZE (GAL)	DIA X HEIGHT(")	WT (LB)	LID (")	PRICE
25 NEW	18 x 29	12	5	58.00
40 NEW	18 x 41	17	5	66.00
65	23 x 42	25	5	86.00
75	23 x 50	35	5	90.00
100	28 x 42	40	.8	112.00
110	32 x 37	40	5	115.00
160	28 x 66	56	8	135.00
175	31 x 57	50	8	151.00
200	40.5 x 47	55	6	158.00
225	31 x 72	65	8	195.00
265	31 x 84	75	8	230.00
300	42 x 54	72	8	212.00
300	35 x 78	82	8	222.00
425	42 x 73	86	8	250.00
500	46 x 73	120	8	302.00
550	52 × 64	116	8	302.00
600	46 x 88	130	16	326.00
625	64 x 50	95	8	275.00
850	54 x 92	185	16	470.00
1000	64 x 80	250	16	540.00
1050	85 x 52	190	16	418.00
1200 NEW	64 x 94	275	16	610.00
1350	85 x 64	228	16	488.00
1500	85 x 69	250	16	530.00
1500	64 x 115	335	16	726.00
1650	85 x 74	276	16	590.00
2000	90 x 81	365	16	775.00
2000	64 x 150	450	16	990.00
2500	90 x 100	420	16	920.00
<ul> <li>Dec. of the rest of the factor of</li></ul>				

90 x 118

96.5 x 142

96.5 x 148

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102 x 190

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142 x 175

550

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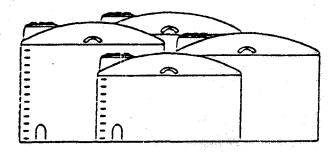
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5200.00

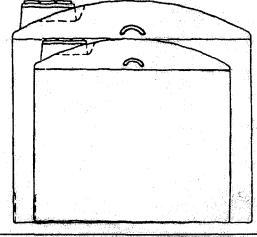
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1500 tdel. 1800 tdel. Hiero tdel. Dee Winston

936-465-1484

Erirovac

13921-1321

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State	City	Company	Contact Name	Contact Number	Notes	Ι	
Alabama		Company	Contact 1 mins		11000	·	$\vdash$
Alaska						<b></b>	<b></b>
Arizona	East Palo Alto, CA	Romic Environmental	Doug Lord	Phone 650-324-1638			
•			Adam Brandin	Phone 650-462-2423 Fax 650-462-2388			
		Heritage Environmental	Greg Allen	Phone 630-739-1151 x286			
		Liivii olimoitai		Fax 630-739-9491			
			1	215-860-6081 - 315 -840-6087			
			Brian Jones	704-391-4500			<u> </u>
	western	Applied Waste Mgmt	Jon Brandon	562-498-7979			<u> </u>
Arkansas		EP&S	Joe Shearn				
California	Long Beach	Applied Waste	Jon Brandon	Phone 562-498-7979			
	(Southern	Management		Fax 562-498-7979			
	California)			Pager 310-249-5298			
	East Palo Alto	Romic	Doug Lord	Phone 650-324-1638			ļ
		Environmental		Fax 650-462-2411			
			Adam Brandin	Phone 650-462-2423			
				Fax 650-462-2388		<u> </u>	ـــــ
	part +300	Philip Services	Jose Negrete	Phone 800-321-1030 Pager 408-968-0622	Friend of Matt's		
Colorado	Denver (+300 mile radius)	Conservation Services, Inc.	Harry Brackelsburg	800-322-8405			
Connecticut	Bristol	Clean Harbors	Mark Rainone	Phone 860-583-8917			
				x320			
				Fax 860-583-6612			<u></u>
		EP&S	Joe Shearn				<u> </u>
Delaware	·	Onyx					
Florida		Chem-Met Services (Permafix)	Mike Sullivan	Phone 734-282-1655			
Georgia	southern	Chem-Met Services (Permafix)	Mike Sullivan	Phone 734-282-1655			
	Atlanta + 200 mile radius	American Waste Recovery	Keith Simmons	Phone 770-514-1668 Fax 770-514-7088 Mobile 404-731-1063			
Hawaii		Chem-Met Services (Permafix)	Mike Sullivan	Phone 734-282-1655			
Idaho							

Chicago	Heritage		Phone 630-739-1151	163 P 121.	
ļ	Environmental	Greg Allen	x286	Dean Croft	
	Lii vii oiiiiioittai		Fax 630-739-9491	Dew Croft 314-388-3500	
		Tim Longosky	215-860-6081		
		Brian Jones	704-391-4500		
Chicago				Jerks – too busy for us	
Chicago/Lemont				Jerks	
					_
Peoria/Pekin	Safety Kleen	Brett Henry	Phone 800-669-5818 Fax 309-346-8521		
	Heritage	Greg Allen	Phone 630-739-1151		
	Environmental		x286		
•			Fax 630-739-9491		
		Tim Longosky	Phone 215-860-6081		
		Brian Jones	Phone 704-391-4500		
northern	Chem-Met	Mike Sullivan	Phone 734-282-1655		
†					
Hammond		Tom Mulcahy			
,	Environmental		Fax 219-852-1700		
		Tim Getzloff	Phone 208-489-2716		
		Tim Golzion	1		
	EP&S	Joe Shearn	1-800-307-7455		_
	EP&S	Joe Shearn			
northern	Clean Harbors				
Baton Rouge	Onyx	David	225-293-4615 phone		
					_
	EP&S	Joe Shearn			
Brownstown	Chem-Met	Mike Sullivan	Phone 734-282-1655		
	Services				
	(Permafix)				
Detroit	Dynecol	John Canon	Phone 313-571-7141		
Blaine	Onyx	John Simpson	Phone 888-887-9457		
	Superior	Ken Benser	Phone 763-535-6536		
	EP&S	Joe Shearn			
		Joe Shearn			
	Heritage Environmental		314-388-3500		
	Chicago/Lemont Peoria/Pekin  northern  Hammond  northern  Baton Rouge  Brownstown	Chicago/Lemont Heritage Environmental Peoria/Pekin Safety Kleen  Heritage Environmental  Chem-Met Services (Permafix)  Hammond Heritage Environmental  EP&S EP&S northern Clean Harbors Baton Rouge Onyx  EP&S Brownstown Chem-Met Services (Permafix)  Detroit Dynecol Blaine Onyx  EP&S EP&S EP&S EP&S EP&S EP&S EP&S EP&	Chicago Clean Harbors Chicago/Lemont Heritage Environmental Peoria/Pekin Safety Kleen Brett Henry  Heritage Environmental  Heritage Environmental  Tim Longosky Brian Jones  Northern Chem-Met Services (Permafix)  Hammond Heritage Environmental  Tom Mulcahy  Tim Getzloff  EP&S Joe Shearn  EP&S Joe Shearn  northern Clean Harbors  Baton Rouge Onyx David  EP&S Joe Shearn  EP&S Joe Shearn  Mike Sullivan  EP&S Joe Shearn  David  EP&S Joe Shearn  Onyx David  Detroit Dynecol John Canon  Blaine Onyx John Simpson  Superior Ken Benser  EP&S Joe Shearn  Mike Sullivan	Tim Longosky   Brian Jones   704-391-4500	Tim Longosky   215-860-6081

Montana						T	Τ
Nebraska	<del> </del>	Clean Harbors	<del> </del>	<del></del>		+	┼-
Nevada		Clean Harbors				┼	┼
New Hampshire					<u> </u>	┼	├
New Jersey	Deptford	Clean Harbors	Brian Townes	800-544-3128		┼	├
New Jersey	Deptioru	Clean Harbors	Di lan Townes	000-344-3120			
			PJ Case	216-429-2401			
	southern	Onyx				<u> </u>	<u></u>
		EP&S	Joe Shearn				L
New Mexico							
New York		Onyx					
		EP&S	Joe Shearn				
North Carolina		Heritage Environmental	Greg Allen	Phone 630-739-1151 x286 Fax 630-739-9491			
			Tim Longosky	215-860-6081			
			Brian Jones	704-391-4500		ĺ	
	Raleigh	EP&S	Amy Menster	Phone 919-469-5989 Fax 919-469-3557			
			Joe Shearn				
North Dakota							
Ohio	Southeast part of state	Weavertown Environmental	Tom Martin	Phone 800-746-4850 Fax 724-746-9024			
	northern	Chem-Met Services (Permafix)	Mike Sullivan	Phone 734-282-1655			
		Clean Harbors					
		EP&S	Joe Shearn				
Oklahoma							
Oregon							
Pennsylvania	Pittsburgh (Western PA)	Weavertown Environmental	Tom Martin	Phone 800-746-4850 Fax 724-746-9024			
	Philadelphia	Onyx formerly Waste Management /AETS	Gene Guarnere	215-289-3700			
	all	EP&S	Joe Shearn	Phone 800-307-7455 Mobile 412-656-8432 Pager 888-814-8078 Fax 412-279-6047			
	Philadelphia	DNA Environmental	Al Ayers	Phone 570-586-1306 Fax 570-586-7998	Jerks won't return calls		

Rhode Island							Τ
South Carolina		Heritage Environmental	Greg Allen	Phone 630-739-1151 x286 Fax 630-739-9491			
			Tim Longosky	215-860-6081			
South Dakota			Brian Jones	704-391-4500		-	+
Tennessee		Safety Kleen			Call Bruce Hazen at Corporate for contact 801-	-	┼
1 chilessee		, in the second	Joe Shearn		540-3333	_	_
Torran		EP&S	Joe Snearn				+
Texas Utah	<u> </u>					+	┼─
Vermont	<del> </del>	EP&S	Joe Shearn				+-
	<u> </u>	EFOS	JUE SHEATH			+	+-
Virginia Washington						+-	+-
Washington DC	<b>-</b>					+	+
West Virginia		Weavertown	Tom Martin	Phone 800-746-4850		+	╁╌
west viigilia		Environmental	1 OIII MARCIII	Fax 724-746-9024			
		EP&S	Joe Shearn	144 /21 / 10 /021		+	+
Wisconsin	Milwaukee (covers upper Midwest)	Superior Environmental	Jim Brahm	Phone 414-965-4536 Fax 414-965-4536			
Wyoming							<u> </u>
Nationwide		Capitol Environmental	Jim Cawthern	Phone 302-652-8999 Fax 302-652-8980		<del> </del>	
		Safety Kleen	Bruce Hazen	Phone 801-540-3333	At Corporate Office – can give a number and contact for offices nationwide		
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Keun Ford 713-428-5288 (AF) 713-385-5533 (CRII)

### SHAWN SOILEAU

FPEED WITH STRUCK

Ph: 225-647-1824 Fax: 225-647-1825 Cell: 225-287-4682

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e-mail: ssoileau@speedindustrial.com www.speedindustrial.com



Test in the second of the seco							
SIMILE TRANSMIT	ITAL SHEET						
From: M	From: Meredith						
ces, Inc. Date: 10	/25/2007						
Fax Number: 713-676-1676 Total No. Pages including cover:							
Sender's	Reference Number:						
Your Re	Your Reference Number:						
□Please Contact	□Please Reply □Please Recycle						
s). Please sign and fax b	ack to 501-776-2864.						
	From: Modes, Inc.  Date: 10  Total Notes Sender's  Your Re						

DAN

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Prepared by: Meredith Morgan FOR OFFICE USE ONLY

Account Rep: Michael Jaskowiak

Regiou: **S02** Profile #:

Broker Rep #: Broker Profile ID:

0710-18126

Approved -- Rineco Processing

Walk Through: No

Special Instructions: No Create Date: 10/22/2007 Last Cert Date: 10/23/2007

Expiration Date: 10/22/2008

### I. WASTE MATERIAL PROFILE SHEET

In accordance with the Federal and State regulations, it is necessary for the Generator of hazardous waste to properly identify the waste for their records as well as to supply the disposal facility with the information necessary to handle the waste. The information outlined below must be complete, and signed by the generator. PLEASE PRINT LEGIBLY OR TYPE.

Status:

Generator Name:

CES Environmental Services, Inc.

USEPA I.D. No.

TXD008950461

Address:

4904 Griggs Road

State I.D. No. 30900

> Phone: 713-676-1460

713-676-1676 Fax:

Houston, TX 77021

Title:

Technical Contact:

Dana Carter

24 hour Phone:

713-676-1460

24 Hour Emergency Contact:

Leroy Arce

Is this material located or generated in a foreign country?

No

Foreign Address:

No

### II. GENERAL INFORMATION

Material Name: NMP & Epoxy Resin

A. Docs waste exhibit the characteristic of ignitability as defined in 40 CFR 261.21? No

B. Does waste exhibit the characteristic of corrosivity as defined in 40 CFR 261.22? No

C. Does waste exhibit the characteristic of reactivity as defined in 40 CFR 261.23?

D. Is waste a spent solvent as defined in 40 CFR 261.31? Nο

E. Is waste a discarded chemical product, off spec, container or spill residues as defined in 40 CFR 261.33? No

Detailed description of process generating waste:

cleaning resin from filters

Anticipated Monthly Volume:

55 gallon drums

Bulk: No Other: Drum: Yes No

III. MATERIAL COMPOSITION	IV. PHYSICAL CHARACTERISTICS							
COLMONENT	Nia	Concent			Physical State:	Liquid		
COMPONENT	Min .	Max	Actual .		Free Liquid:	Yes		
N-methyl-2-pyrrolidone	80.00	90.00			Viscosity:	Low		
Epoxy resin (phenol, 4,4' (1-methylethylidene) bis-, polymer					Layers:	Single		
with 2,2' (1-methylethyllidene) bis (4,1-phenyleneoxymeth					Odor:	Mild		
ylene)] bis[oxirane]	10.00	20.00			Flash Point:	> 200F		
					BTU:	11148		
					pH Level;			
					Actual pH: Density:	.5.9 8.99		
					V. OTHER CHA	RACTER	ISTIC	S
					No Explosiv No Radioac No Sulfide No Etiologi No Pyropho	cal	No No No No No	Dioxin Shock Sensitive PCB Cyanide Water Reactive

VI. SHIPPING IN	ORMATION							Profi	le #:	0710-1	8126
DOT Hazardous Mate	rial: No				ER Guide #						
Proper Shipping Name	: Non Re	gulated Ma	erial								
Hazard Class and Divi	sion: N/A			,	UN or NA:		Packaging Gro	oup: N/A			
RQ: No If Y	es:					Addl. Info:	<b>~</b> -	•			
USEPA HAZARDOU	S WASTE:	No									
_	NonRCRA		· · · · · · · · · · · · · · · · · · ·		-						
Waste I.D. Numbers:											
VII. INDICATE IF TH							iefined by 40 C	FR 261.24.			·
Check only if waste ex						f available.					
Constituent		Regulatory level PPM	TCLP PPM	Total PPM	Know ledge Consti	ment		Regulatory level PPM	TCLP PPM	Total PPM	Know ledge
D004 Arsenic	<del>^</del>	5.0	· · ·			m-Cresol		200.0			
D005 Barium		100.0			D025	p-Cresol		200.0			
D006 Cadmium		1.0			D026	Cresol		200.0			
D007 Chromium		5.0			D027	1,4,Dichlorobenze	ne	7.5			
D008 Lead		5.0			D028			0.5			
D009 Mercury		0.2			D029		ne	0.7			
D010 Selenium		1.0			D030	•		0.13			
D011 Silver D012 Endrin		5.0			D031	•		0.008			
D012 Endrin D013 Lindane	•	0.02			D032 D033		•	0.13			
D013 Emdane D014 Methoxychlor		0.4				Hexachloroethane	anc	0.5			
D014 Wedloxychiol D015 Toxaphene		10.0			D034		né	3.0			
D016 2,4 Dichlorophe	novvecetic ecid	0.5 10.0				Nitrobenzene	IIC	200.0 2.0			
0017 2,4,5 TP Silvex	noxyuoone uonu	1.0				Pentachlorophenol		100.0			
0018 Benzene		0.5				Pyridine		5.0			
0019 Carbon Tetrachl	oride	0.5				Tetrachloroethylen	e	0.7			
0020 Chlordane		0.03				Trichloroethylene		0.5			- 1
0021 Chlorobenzene		100.0			D041	2,4,5 Trichloropher	nol	400.0			
0022 Chloroform		6.0			D042	2,4,6 Trichloropher	nol	2.0			
0023 o-Cresol		200.0			D043	Vinyl Chloride		0.2			
/III. Benzene Waste annear in section 1. Is this waste gene	on 6 (shipping	information	٦.		_	te only if D018 and			I/A		
2. Does this stream I	nave Benzene co	ncentration o	f 10ppm o	r more?				7	ī/Α'		
3. Does this stream of	contain greater th	nan 10% moi	sture?					<u>N</u>	7/A		
4. Is this company's	Total Annual Be	mzene (TAB)	of 10Mg	or greate	г рег уеаг?			Ŋ	I/A		
5. Is NESHAP form	required?							1	I/A		
AUTHORIZATION T this Waste Material Prestatutes and regulation hereby authorize Rinco	offle Sheet to make, Rineco will control of the con	ake the informontact the Gentarges purs	nation heri nerator and uant to this ATION: T	n consist d receive s paragra HIS CEF	ent with the resonant coral authorize ph.	esults of the sample	characterization orrections. Geo	n and/or appinerator	icable i	federal an	d state
		` _				<i>'</i> , '					}
Print Name:	Dan 1	٧	6.10		Title	Bakes	*,				

### Rineco

819 Vulcan Road -- Haskell P.O. Box 729, Benton, AR

Office (501) 778-9089 Fax (501) 778-8505

Prepared by: Meredith Morgan

### FOR OFFICE USE ONLY

Account Rep: Michael Jaskowiak

Region: **S02** 

Profile #: 0710-18126

Broker Rep #: Broker Profile ID:

Create Date: 10/22/2007 Last Cert Date: 10/23/2007

Expiration Date: 10/22/2008

Walk Through: No

Special Instructions: No

Status: Approved -- Rineco Processing

### . WASTE MATERIAL PROFILE SHEET

In accordance with the Federal and State regulations, it is necessary for the Generator of hazardous waste to properly identify the waste for their records as well as to supply the disposal facility with the information necessary to handle the waste. The information outlined below

must be complete, and signed by the generator. PLEASE PRINT LEGIBLY OR TYPE.

Generator Name: CES Environmental Services, Inc.

USEPA I.D. No. TXD008950461

State I.D. No. 30900

Phone: 713-676-1460

Fax: 713-676-1676

Houston, TX 77021

4904 Griggs Road

Title:

Dana Carter

24 hour Phone:

*713-676-1460* 

24 Hour Emergency Contact:

Leroy Arce

Is this material located or generated in a foreign country?

No

Foreign Address:

Technical Contact:

Address:

### II. GENERAL INFORMATION

Material Name: NMP & Epoxy Resin

A. Does waste exhibit the characteristic of ignitability as defined in 40 CFR 261.21? No

No B. Does waste exhibit the characteristic of corrosivity as defined in 40 CFR 261.22?

C. Docs waste exhibit the characteristic of reactivity as defined in 40 CFR 261.23? No

D. Is waste a spent solvent as defined in 40 CFR 261.31? No

No E. Is waste a discarded chemical product, off spec, container or spill residues as defined in 40 CFR 261.33?

Detailed description of process generating waste: cleaning resin from filters

Anticipated Monthly Volume:

55 gallon drums

Bulk: No Drum: Yes Other: No

III. MATERIAL COMPOSITION	IV. PHYSICAL CHARACTERISTICS							
		Concent	• • • •		Physical State:	Liquid		
COMPONENT	Min	Max	Actual	PPN	Free Liquid:	Yes		
N-methyl-2-pyrrolidone	80.00	90.00			Viscosity:	Low		
Epoxy resin (phenol, 4,4' (1-methylethylidene) bis-, polymer					Layers:	Single		e de la companya de
with 2,2" (1-methylethyllidene) bis (4,1-phenylencoxymeth	_				Odor:	Mild		
ylene)] bis[oxirane]	10.00	20.00			Flash Point:	> 200F		
					BTU:	11148		
					pH Level:			
					Actual pH: Density:	5.9 8.99		
					V. OTHER CHA	ARACTER	ISTIC	S
					No Explosi		No	Dioxin
					No Radioac	ctive	No	Shock Sensitive
					No Sulfide		No	PCB
					No Etiologi		No	Cyanide
					No Pyrophe	oric	No	Water Reactive

VI. SHIPPING IN	IFORMATION						Pro	ofile#:	0710-1	8126
DOT Hazardous Mat	terial: No				ER Guide #:					
Proper Shipping Nan		gulated Ma	terial							
		•								
Hazard Class and Div	vision: N/A			1	UN or NA:	Pac	kaging Group: N/A			
RQ: No If	Yes:					Addl. Info;				
USEPA HAZARDOJ	JS WASTE:	No								
	NonRCRA						· · · · · · · · · · · · · · · · · · ·			,
Waste I.D.										
Numbers:										
VII INDICATE IF T	HIS WASTE CO	NTAINS AN	V OF THE	FOLLO	WINGCHAR	ACTERISTICS as defin	ad by 40 CEP 261 24			
Check only if waste s							cu by 40 C/R 201.24			
Constituent		Regulatory	TCLP	Total	Know ladge Constit	uent	Regulatory	TCLP	Total	Know
		Icvol PPM	PPM	PPM	louge		level PPM	PPM	PPM	ledge
D004 Arsenic D005 Barium		5.0				m-Cresol	200.0			
D006 Cadmium		100.0 1.0				p-Cresol Cresol	200.0 200.0			
D007 Chromium		5.0				1,4,Dichlorobenzene	7.5			
D008 Lead		5,0				1,2,Dichloroethane	0.5			
D009 Mercury		0.2				1,1 Dichloroethylene	0.7			,
D010 Sclenium		1.0			D030	2,4 Dinitrotoluene	0.13			
D011 Silver		5.0				Heptachlor	0.008			
D012 Endrin		0.02				Hexachlorobenzene	0.13			
D013 Lindane		0.4			D033	Hexachlorobutadiene	0.5			
D014 Methoxychlor		10.0				Hexachloroethane	3.0			
D015 Toxaphene D016 2,4 Dichtoroph	annovacatio said	0.5			D035 D036	Methyl Ethyl Ketone Nitrobenzene	200.0			
D010 2,4 Dichloroph D017 2,4,5 TP Silver	•	10.0 <u>1</u> .0			D037		2.0 100.0			ł
D018 Benzene	•	0.5				Pyridine	5.0			
D019 Carbon Tetrach	aloride	0.5				Tetrachloroethylene	0.7			
D020 Chlordane		0.03			D040	Trichloroethylene	0.5			
D021 Chlorobenzene		100.0			D041	•	400.0			1
D022 Chloroform		6.0				2,4,6 Trichlorophenol	2.0			
D023 o-Cresol		200.0		<u>.</u>	D043	Vinyl Chloride	0.2			
VIII. Benzene Wast	e Operations N	ESHAP Ger	erator Ce	rtification	on. Complet	e only if D018 and/orl	J01 <del>9</del>			1
	ion 6 (shipping				- -					- 1
•		•		_	C Codes: 291	1,2800-2899,3312 or 49	53?	N/A N/A		ſ
	have Benzene co			( More?				N/A		
and the second s	Total Annual Be			. <b></b>		· · · · · · · · · · · · · · · · · · ·		N/A		
5. Is NESHAP form		enzene (TAD	) or rowing	or Ricare	r per year?			N/A		
							•		¢	
						e event Rincco determine				
						esults of the sample char				
hereby authorize Rine						ation to make such correc	cuons. Generator	_ goes _	does	70t
					·					
	GENERATO	r certific	ATION: TI	HIS CEF	RTIFICATION	I IS REQUIRED FOR E	ACH PROFILE.			
1	This above inform	ation is to be	held confi	dential a	and is true and	accurate to the best of m	y knowledge.			1
Signature:	$\mathcal{T} = \mathcal{O}$				Date:	1 ,				
<u> </u>	m D	<del></del>	<del></del>		-	11/06/07			_	- 1
Drine Mana	7	2			Tiele.	, 1				
Print Name:	٠ م ( ا	1)			Title	Annt				1

## MATERIAL SAFETY DATA SHEET

Effective 9/01/06

### EVERLAST CP1131949

(CONCENTRATE)

### SECTION 1- PRODUCT IDENTIFICATION AND USE

PRODUCT IDENTIFIER PRODUCT USE MANUFACTURER'S & SUPPLIER'S NAME: Everlast CP1131949

Solvent Drumbeaters of America Inc. 215 West Nebraska Street Elburn, IL 60119

TELEPHONE: (630) 365-5527 EMERGENCY PHONE: (630) 365-5527

FAX: (630) 365-9928

### **SECTION 2- HAZARDOUS INGREDIENTS**

One of the components of this compound contains N-Methyl-2-Pyrrolidone and is subject to reporting Requirements of SARA Title III Section 313. RS-98 is a non-controlled product under WHMIS (Workplace Hazardous Materials Information System). Carcinogenicity Status: NTP-No; OSHA-No; IARC-No; ACGIH-No

### SECTION 3 - PHYSICAL DATA

PHYSICAL STATE:
APPEARANCE AND ODOR:
ODOR (PPM):
VAPOR PRESSURE (mm hG):
VAPOR DENSITY (Air=1-):
EVAPORATION RATE:
VOC: (ASTM Method D 3960)
BOILING POINT: (ASTM Method D 86-82)
FREEZING POINT:
pH: (EPA Method 150.1)
SPECIFIC GRAVITY: (Westphal Balance)
SOLUBILITY IN WATER: (TSL Method)
VISCOSITY: (Brookfield, ASTM Method D2196)

Liquid
Amber liquid
<1
<0.0733
>1 g/l
Slow
.87 lb./gal
213° F / 101° C
N/A
7.4 @ 25° C

7.4 @ 25° C 1.0417 @ 21° C 40% @ 20° C 5.2 cps @ 25° C

### SECTION 4 - FIRE AND EXPLOSION DATA

FLAMMABLE LIMITS IN AIR (g/l):
FLASH POINT AND METHOD: (Closed Cup EPA Method 1010)
EXTINGUISHING MEDIA:
LOWER FLAMMABILITY LIMIT % BY VOL:
AUTOIGNITION TEMPERATURE
HAZARDOUS COMBUSTION PRODUCTS:
EXPLOSION DATA – SENSITIVITY TO IMPACT:
SENSITIVITY TO STATIC CHARGE:

LFL=N/D, UFL= N/D 220° F/ 104° C Foam, CO<sub>2</sub>, Dry chemical N/A N/A Carbon Monoxide, Oxides of Nitrogen None

### SECTION 5 - REACTIVITY DATA

CHEMICAL STABILITY: INCOMPATIBILITY: **DECOMPOSING PRODUCTS:** CONDITIONS FOR REACTIVITY:

ALUMINUM TEST: (Modified ASTM Method F482-84)

Stable under normal conditions Strong oxidizing agents

None known

Hazardous polymerization will

not occur No effect

SECTION 6 - TOXILOGICAL PROPERTIES

**ROUTES OF ENTRY:** 

EFFECTS OF ACUTE EXPOSURE:

to mucous membranes; Skin Contact--may cause irritation or dermatitis; Eve Contact -- may

system

EFFECTS OF CHRONIC OVER-EXPOSURE:

**EXPOSURE LIMITS:** IRRITANCY OF PRODUCT:

SENSITIZATION TO PRODUCT: CARCINOGENICITY: TERATOGENICITY:

REPRODUCTIVE TOXICITY: MUTAGENICITY:

SYNERGISTIC PRODUCTS:

contact; inhalation; ingestion Inhalation—may cause irritation cause stinging or burning; Ingestion--

Skin contact and absorption; eye

may cause irritation to the digestive

Eyes - may cause eye damage; Skin -may cause dermatitis

None

Eye and skin irritant

None None None None None None

SECTION 7 – PREVENTATIVE MEASURES

GLOVES (SPECIFY):

RESPIRATOR (SPECIFY):

EYE (SPECIFY):

FOOTWARE (SPECIFY):

OTHER (SPECIFY):

ENGINEERING CONTROLS (i.e., ventilation, enclosed process):

WASTE DISPOSAL:

Canada- Refer to local government regulations regarding waste disposal. USA - Virgin materials is not regulated by the Resource Conservation and Recovery Act (RCRA) (40

CFR PART 260-261).

STORAGE REQUIREMENTS:

Chemically resistant

If needed, use MSHA/NIOSH approved, mist organic vapor cartridge (i.e., OVD/DM #8741 or #8751A from 3M)

Chemical splash goggles And/or face shield Apron and rubber boots

None

None required

**BIODEGRADABLE** 

Store away from oxidizing

Agents

### SECTION 8 - FIRST AID MEASURES

EYE:

In case of contact, immediately flush with plenty of low-pressure water at least

15minutes. Remove any contact lenses to ensure thorough flushing. Call a physician.

SKIN:

Wash with soap and running water.

INHALATION: If inhaled, remove to area of fresh air. Drink large quantities of milk or water. Never

give anything by mouth to an unconscious person. Call a physician or the Poison

Control Center.

PRIMARY ROUTES OF ENTRY: Eyes, skin

While the information and information set forth herein are believed to be accurate as of the date hereof, Drumbeaters of America Inc. makes no Warranty with respect thereto and disclaims all liability for reliance thereon.

### Material Safety Data Sheet



EPONJM Resin 1009F

Version 13.1

Revision Date 06/25/2005

Print Date 07/01/2005

## SECTION 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Trade name

: EPON(TM) Resin 1009F

Product code

K1983

**MSDS** Number

187

**Product Type** 

Epoxy resin.

Company

Hexion Specialty Chemicals, Inc.

P. O. Box 4500 Houston, TX 77210

USA

Telephone

(832) 486-6700

Emergency telephone

number

CHEMTREC US Domestic (800) 424-9300 CHEMTREC International (703) 527-3887

### SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Weight %
Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]	25036-25-3	100 %

### **SECTION 3. HAZARDS IDENTIFICATION**

### **Emergency Overview**

Human health hazards

: May be irritating to the eyes, respiratory system and skin.

May be harmful if swallowed.

Safety hazards

: Material will not burn unless preheated. Danger of dust

explosion. Electrostatic charges may be generated during

100

handling.

### SECTION 4. FIRST AID MEASURES

1/10



### EPON Resin 1001E

Version 15.1 Revision Date 06/02/2007 Print Date 07/03/2007

### 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

### **Product information**

Trade name

: EPON™ Resin 1001F

Product code

: K1453

MSDS Number

184

Product Type

: Epoxy resin.

Manufacturer, importer,

supplier

Hexion Specialty Chemicals, Inc.

P. O. Box 4500

Houston TX 77210

Contact person

: hsebox@hexion.com

Telephone

General Information:

(832) 486-6700

Emergency telephone:

CHEMTREC US Domestic (800) 424-9300 CHEMTREC International (703) 527-3887

### SECTION 2. HAZARDS IDENTIFICATION

### **Emergency Overview**

Human health hazards

: Causes skin irritation. May cause respiratory tract irritation.

May be irritating to the eyes. May cause skin sensitization.

Safety hazards

: Combustible dust when finely divided or suspended in air.

Presents a fire or explosion hazard when dispersed and ignited in air. Risk of generating electrostatic charges during handling.

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Weight %
Phenol, 4,4'-(1-methylethylidene)bis-, polymer with	25036-25-3	100 %
2,2'-[(1-methylethylidene) bis(4,1-phenylene	·	
oxymethylene)] bis[oxirane]	11. N	



Version *15.1* Revision Date 06/02/2007 Print Date 07/03/2007

### 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

**Product information** 

Trade name

: EPON<sup>™</sup> Resin 1001F

Product code

K1453

**MSDS Number** 

184

**Product Type** 

Epoxy resin.

Manufacturer, importer,

supplier

Hexion Specialty Chemicals, Inc.

P. O. Box 4500

Houston TX 77210

Contact person

hsebox@hexion.com

Telephone

General Information:

(832) 486-6700

Emergency telephone:

CHEMTREC US Domestic (800) 424-9300 CHEMTREC International (703) 527-3887

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Human health hazards

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Safety hazards

: Combustible dust when finely divided or suspended in air.

Presents a fire or explosion hazard when dispersed and ignited in air. Risk of generating electrostatic charges during handling.

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Chemical Name	CAS-No.	Weight %
Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene) bis(4,1-phenylene	25036-25-3	100 %
oxymethylene)] bis[oxirane]	<u> </u>	



## EPON<sup>™</sup> Resin 1001F

Version 15.1 Revision Date 06/02/2007 Print Date 07/03/2007

### **SECTION 4. FIRST AID MEASURES**

Inhalation

Remove victim to fresh air and provide oxygen if breathing is difficult. Give artificial respiration if not breathing. Get medical

attention.

Skin contact

Remove contaminated clothing/shoes and wipe excess from skin. Flush skin with water. Follow by washing with soap and water. In case of inflammation (redness, irritation, ...) obtain medical attention. Show this sheet to the doctor. Do not reuse clothing until cleaned.

Eye contact

Flush eyes with plenty of water for 15 minutes while holding

eyelids open. Get medical attention.

Ingestion

Do not induce vomiting. In general, no treatment is necessary unless large quantites of product are ingested. However, get

medical advice.

Notes to physician

**Symptoms** 

: Irritation as noted above. Skin sensitization (allergy) may be

evidenced by rashes, especially hives.

### **SECTION 5. FIRE-FIGHTING MEASURES**

Suitable extinguishing

media

Use water fog, foam, dry chemical or carbon dioxide.

Specific hazards during fire

fighting

Material will not burn unless preheated. Organic powders when

finely divided (420 microns or smaller in diameter) and suspended in air may form explosive dust-air mixtures and result

in a fire or dust explosion.

Cool fire exposed containers with water.

Special protective equipment for fire-fighters Do not enter confined fire space without full bunker gear (helmet with face shield, bunker coats, gloves and rubber boots).

including a positive pressure NIOSH approved self-contained

breathing apparatus.

### **SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions

Minimize airborne dust and eliminate all ignition sources.

Do not use air hoses for cleaning.



Version 15.1 Revision Date 06/02/2007 Print Date 07/03/2007

Clean-up methods - large

spillage

Minimize dry sweeping to avoid generation of dust clouds.

Vacuum dust-accumulating surfaces and remove to a chemical

disposal area.

Vacuums with explosion-proof motors should be used.

Additional advice

Notify authorities if any exposures to the general public or

environment occurs or is likely to occur. See Section 13 for information on disposal.

### SECTION 7. HANDLING AND STORAGE

### Handling

Advice on safe handling

Combustible Dust Handling Procedures: Combustible dusts at sufficient concentrations can form explosive mixtures with air. High dust concentrations should be avoided. Minimize airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame. Establish good housekeeping practices. Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds. Control sources of static electricity. This product or the package itself can accumulate static charges, and static discharge can be a source of ignition. Static discharge in or near flammable vapors or flammable dust clouds may cause flash fire. Do not empty directly into flammable solvents or in the presence of flammable vapors. The operator, the packaging container and all equipment must be grounded with electrical bonding and grounding systems. Plastic bags and plastic cannot be grounded, and antistatic bags do not completely protect against development of static charges. Follow US NFPA Standard 654, "Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing and Handling of Combustible Particulate Solids", US NFPA Standard 77, "Recommended Practice on Static Electricity", UK HSE Guidance HSG 103, or other national guidance on safe handling.

#### Storage

Requirements for storage areas and containers

Store in a cool, dry place with adequate ventilation. Keep away from open flames and high temperatures.

### SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Protective measures

Wear appropriate respirator and protective clothing.

## **HEXION**

### EPON™ Resin 1001F

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Engineering measures : Use explosion-proof ventilation as required to control particulate

concentrations.

Eye wash fountains and safety showers should be available for

emergency use.

Eye protection : Avoid contact with eyes.

Wear safety glasses or goggles as appropriate.

Skin and body protection : Avoid prolonged or repeated contact with skin.

Wear chemical-resistant gloves and other clothing as required to

minimize contact.

Respiratory protection : Avoid prolonged or repeated breathing of dust.

Use a NIOSH-approved respirator as required to prevent

overexposure.

In accord with 29 CFR 1910.134,

Use either an atmosphere-supplying respirator or an

air-purifying respirator for particulates.

### **Exposure Guidelines**

Components with workplace control parameters	Regulation	Exposure time	Value	Remarks
Phenol, 4,4'-(1-methylethylidene)bi s-, polymer with 2,2'-[(1-methylethylidene) bis(4,1-phenylene oxymethylene)] bis[oxirane]	ACGIH			None established.
DUST, TOTAL DUST	OSHA PEL		15 mg/m3	
	ACGIH TLV		10 mg/m3	
DUST, RESPIRABLE DUST	OSHA PEL		5 mg/m3	
	ACGIH TLV		5 mg/m3	

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form

: Pastilles (Beads)

Colour

: Amber

Melting I freezing point

: > 10 °C (> 50 °F)

## **HEXION**

### EPON™ Resin 1001F

Version 15.1 Revision Date 06/02/2007 Print Date 07/03/2007

Flash point

: > 93 °C (> 199 °F)

Relative density

: 1.19

Solubility in water

: Negligible.

### **SECTION 10. STABILITY AND REACTIVITY**

Materials to avoid

: Can react vigorously with strong oxidizing agents, strong lewis

or mineral acid, and strong mineral and organic bases, especially primary and secondary aliphatic amines.

Reacts with considerable heat release with some curing

agents.

Hazardous decomposition

products

Carbon monoxide, aldehydes, and acids may be formed during

combustion.

Hazardous reactions

: Hazardous polymerization will not occur.

Stable.

### **SECTION 11. TOXICOLOGICAL INFORMATION**

Acute oral toxicity

: LD50 - Low toxicity, LD50 > 2000 mg/kg.

Acute dermal toxicity

LD50 - Expected to be of low toxicity, LD50 > 2000 mg/kg.

### **Chronic Health Hazard**

Components	Concentration	Regulation	Value	Remarks
Phenol, 4,4'-(1-methylethyl idene)bis-, polymer with 2,2'-[(1-methylethy lidene) bis(4,1-phenylene oxymethylene)] bis[oxirane]	100 %	US. IARC Monographs on Occupational Exposures to Chemical Agents		This component has not been classified by the International Agency for Research on Cancer (IARC).

**EPON**<sup>™</sup> **Resin 1001F**Version 15.1
Revision Date 06/02/2007

Bioaccumulation

Print Date 07/03/2007

Carcinogenicity	: Recent 2-year bioassays in rats and mice exposed by the
Caronogernoity	
	dermal route to the diglycidyl ether of bisphenol A(BADGE)have
	yielded very limited evidence of weak carcinogenicity.
	: It was concluded that the renal tumor evidence with a resin
	similar to a component "was of no biological significance" and
•	that the resin "is not a systemic carcinogen when applied to the
	dorsal skin of CF1 mice."
	CO. Opti Other City in the Co.
	: Note: Diglycidyl ether of bisphenol A (BADGE) is a component in
	all BPA/ECH based epoxy resins.
	A11 1 1 10 10 10 10 10 10 10 10 10 10 10
Mutagenicity	: Although the significance is unknown, solid epoxy resins were
	reported to show weak but reproducible mutagenic activity in
	bacterial assays in the absence of metabolic activation.
	: Assays in which the metabolic enzymes were present were
	negative.
	: Solid epoxy resins were also reported to induce mitotic gene
+ 1 + 3 × 1	
	conversion in yeast, chromosomal aberrations in cultured rat
	liver cells, and neoplastic transformations in BHK cells.
	: All in vivo assays were negative.
Potential Health Eff	ets .
Inhalation	: Inhalation of dust may cause mechanical irritation of the
	respiratory tract.
Skin	: Slightly irritating to the skin.
	May cause skin sensitization.
	may bause sidir sorisideadori.
Evos .	Dust can cause mechanical irritation of avec
Eyes	: Dust can cause mechanical irritation of eyes.
Land Com	Medium additable analysis of the contract
Ingestion	: Not expected to be a relevant route of exposure, however,
	product is expected to have a low order of acute oral toxicity.
Aggravated Medical	: Preexisting eye,skin and respiratory disorders may be
Condition	aggravated by exposure to this product.
TION 12. ECOLOGIC	L INFORMATION
Elimination informa	on (persistence and degradability)
Elimination informa Biodegradability	: Expected to be not readily biodegradable.

Not expected to bioaccumulate significantly.



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Print Date 07/03/2007

**Ecotoxicity effects** 

Chronic toxicity - fish

: Expected to be practically non toxic, LC/EC/IC 50 > 100 mg/l.

SECTION 13. DISPOSAL CONSIDERATIONS

Product disposal

: If this material becomes a waste, it would not be a hazardous waste by RCRA criteria (40 CFR 261). Place in an appropriate disposal facility in compliance with local and federal regulations.

Product disposal

Under EPA-RCRA (40 CFR 261.24), a waste containing Benzene is hazardous (hazardous waste number D018) if it exhibits the characteristics of toxicity as shown by the toxicity characteristic leaching procedure (TCLP). Refer to the latest EPA or state regulations regarding proper disposal. Refer to the latest EPA or state regulations regarding proper disposal.

**SECTION 14. TRANSPORT INFORMATION** 

CFR\_ROAD

NOT REGULATED FOR TRANSPORT

**IMDG** 

NOT REGULATED FOR TRANSPORT

IATA\_C

NOT REGULATED FOR TRANSPORT

**SECTION 15. REGULATORY INFORMATION** 

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

-Notification status

**AICS** 

: Listed.

DSL

: Listed.

INV (CN)

Listed.

**TSCA** 

Listed.

KECI (KR)

Listed.



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PICCS (PH)

Listed.

ENCS (JP)

: Listed.

**EINECS** 

Polymer exempt.

Notification status

Legend

y = Yes (Listed); AICS = Australian Inventory of Chemical Substances; DSL = Canadian Domestic Substances List; INV(CN) = Inventory of Existing Chemicals Substances in China; ENCS(JP) = Japanese Existing and New Chemical Substances; TSCA = Toxic Substance Control Act; EINECS = European Inventory of New and Existing Chemicals; KECI(KR) = Korean Existing Chemicals Inventory; PICCS(PH) = Philippine

Inventory of Chemicals and Chemical Substances

### US. EPA CERCLA Hazardous Substances (40 CFR 302)

Phenol, 4,4'-(1-methylethylidene)bis-, No RQ polymer with 2,2'-[(1-methylethylidene) bis(4,1-phenylene oxymethylene)] bis[oxirane]

#### SARA 311/312 Hazards

Chronic Health Hazard

## US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals(40 CFR 372. 65) - Supplier Notification Required

Phenol, 4,4'-(1-methylethylidene)bis-, No De minimis Concentration polymer with 2,2'-[(1-methylethylidene) bis(4,1-phenylene oxymethylene)] bis[oxirane]

# US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A)

Phenol, 4,4'-(1-methylethylidene)bis-, Threshold Planning Quantity: No TPQ polymer with 2,2'-[(1-methylethylidene) bis(4,1-phenylene oxymethylene)] bis[oxirane]



### EPON<sup>™</sup> Resin 1001F

Version 15.1 Revision Date 06/02/2007

Print Date 07/03/2007

Phenol, 4,4'-(1-methylethylidene)bis-, Reportable quantity: No RQ polymer with 2,2'-[(1-methylethylidene) bis(4,1-phenylene oxymethylene)] bis[oxirane]

### New Jersey Right-To-Know Chemical List

Phenol, 4,4'-(1-methylethylidene)bis-, Not Listed polymer with 2,2'-[(1-methylethylidene) bis(4,1-phenylene oxymethylene)] bis[oxirane]

### Additional Components Not Found In Section 2:

Components	CAS-No.	Concentration	Remarks	. ,
Benzene	71-43-2	< 80 PPM	Listed.	

### Pennsylvania Right-To-Know Chemical List

Phenol, 4,4'-(1-methylethylidene)bis-, Not Listed polymer with 2,2'-[(1-methylethylidene) bis(4,1-phenylene oxymethylene)] bis[oxirane]

### **Additional Components Not Found In Section 2:**

Components	CAS-No.	Concentration	Remarks
Benzene	71-43-2	< 80 PPM	Special hazard.

### Massachusetts Right-To-Know Chemical List

Phenol, 4,4'-(1-methylethylidene)bis-, Not Listed polymer with 2,2'-[(1-methylethylidene) bis(4,1-phenylene oxymethylene)] bis[oxirane]

### **Additional Components Not Found In Section 2:**

Components	CAS-No.	Concentration	Remarks
Benzene	71-43-2	< 80 PPM	Carcinogenic.

US. California Safe Drinking Water & Toxic Enfor cement Act (Proposition 65)
Additional Components Not Found In Section 2:



Version 15.1 Revision Date 06/02/2007

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Components	Concentration	Regulation	Value	Remarks
Benzene	< 80 PPM	US. California Safe Drinking Water & Toxic Enfor cement Act (Proposition 65)	Listed: February 27, 1987	Carcinogenic.

HMIS Rating :

Health: 2

Fire: 1

Reactivity: 0

### **SECTION 16. OTHER INFORMATION**

Reference

Prepared in accordance with 29 CFR 1910.1200.

The information provided herein was believed by Hexion Specialty Chemicals ("Hexion") to be accurate at the time of preparation or prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information, to comply with all laws and procedures applicable to the safe handling and use of the product and to determine the suitability of the product for its intended use. All products supplied by Hexion are subject to Hexion's terms and conditions of sale. HEXION MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY HEXION, except that the product shall conform to Hexion's specifications. Nothing contained herein constitutes an offer for the sale of any product.

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Print Date 07/03/2007

### 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

**Product information** 

Trade name

: EPON™ Resin 1009F

Product code

K1983

**MSDS Number** 

187

**Product Type** 

Epoxy resin.

Manufacturer, importer,

.

supplier

Hexion Specialty Chemicals, Inc. P. O. Box 4500

Houston TX 77210

Contact person

hsebox@hexion.com

Telephone

General Information:

(832) 486-6700

Emergency telephone:

CHEMTREC US Domestic (800) 424-9300 CHEMTREC International (703) 527-3887

### **SECTION 2. HAZARDS IDENTIFICATION**

### **Emergency Overview**

Human health hazards

: May be irritating to the eyes, respiratory system and skin. May

be harmful if swallowed.

Safety hazards : Combustible dust when finely divided or suspended in air.

Presents a fire or explosion hazard when dispersed and ignited in air. Risk of generating electrostatic charges during handling.

### **SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical Name	CAS-No.	Weight %	
Phenol, 4,4'-(1-methylethylidene)bis-, polymer with	25036-25-3	100 %	
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethyle	1		
ne)]bis[oxirane]	=		



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### **SECTION 4. FIRST AID MEASURES**

Inhalation

: Remove victim to fresh air and provide oxygen if breathing is difficult. Give artificial respiration if not breathing. Get medical

attention.

Skin contact

Remove contaminated clothing/shoes and wipe excess from skin. Flush skin with water. Follow by washing with soap and water. In case of inflammation (redness, irritation, ...) obtain medical attention. Show this sheet to the doctor. Do not reuse clothing until cleaned.

Eye contact

Flush eyes with plenty of water for 15 minutes while holding eyelids open. Get medical attention.

Ingestion

 Do not induce vomiting. In general, no treatment is necessary unless large quantites of product are ingested. However, get medical advice.

Notes to physician

**Symptoms** 

Irritation as noted above.

#### **SECTION 5. FIRE-FIGHTING MEASURES**

Suitable extinguishing

media

: Use water fog, foam, dry chemical or carbon dioxide.

Specific hazards during fire

fighting

Material will not burn unless preheated. Organic powders when finely divided (420 microns or smaller in diameter) and

suspended in air may form explosive dust-air mixtures and result

in a fire or dust explosion.

Evacuate hazard area of unprotected personnel. Cool fire exposed containers with water. Container areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure.

Special protective equipment for fire-fighters

Do not enter confined fire space without full bunker gear (helmet with face shield, bunker coats, gloves and rubber boots). including a positive pressure NIOSH approved self-contained breathing apparatus.

### **SECTION 6. ACCIDENTAL RELEASE MEASURES**

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Personal precautions

Minimize airborne dust and eliminate all ignition sources.

Do not use air hoses for cleaning.

Clean-up methods - large

spillage

Minimize dry sweeping to avoid generation of dust clouds.

Vacuum dust-accumulating surfaces and remove to a chemical

disposal area.

Vacuums with explosion-proof motors should be used.

Additional advice

Notify authorities if any exposures to the general public or

environment occurs or is likely to occur. See Section 13 for information on disposal.

#### **SECTION 7. HANDLING AND STORAGE**

#### Handling

Advice on safe handling

Combustible Dust Handling Procedures: Combustible dusts at sufficient concentrations can form explosive mixtures with air. High dust concentrations should be avoided. Minimize airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame. Establish good housekeeping practices. Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds. Control sources of static electricity. This product or the package itself can accumulate static charges, and static discharge can be a source of ignition. Static discharge in or near flammable vapors or flammable dust clouds may cause flash fire. Do not empty directly into flammable solvents or in the presence of flammable vapors. The operator, the packaging container and all equipment must be grounded with electrical bonding and grounding systems. Plastic bags and plastic cannot be grounded, and antistatic bags do not completely protect against development of static charges. Follow US NFPA Standard 654, "Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing and Handling of Combustible Particulate Solids", US NFPA Standard 77, "Recommended Practice on Static Electricity", UK HSE Guidance HSG 103, or other national guidance on safe handling.

#### Storage

Requirements for storage areas and containers

Keep containers closed when not in use. Store in a cool, dry place with adequate ventilation. Keep away from open flames

and high temperatures.



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### **SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

Protective measures

Wear appropriate respirator and protective clothing.

**Engineering measures** 

: Use explosion-proof ventilation as required to control particulate

concentrations.

Eye wash fountains and safety showers should be available for

emergency use.

Eye protection

: Avoid contact with eyes.

Wear safety glasses or goggles as appropriate.

Skin and body protection

Avoid prolonged or repeated contact with skin.

Wear chemical-resistant gloves and other clothing as required to

minimize contact.

Respiratory protection

: Avoid prolonged or repeated breathing of dust.

Use a NIOSH-approved respirator as required to prevent

overexposure.

In accord with 29 CFR 1910.134, the types of respirator(s) to be

considered include:

Air-Purifying Respirator for Dusts and Mists.

Supplied-Air Respirator.

### **Exposure Guidelines**

Components with workplace control parameters	Regulation	Exposure time	Value	Remarks
Phenol, 4,4'-(1-methylethylidene)bi s-, polymer with 2,2'-[(1-methylethylidene)b is(4,1-phenyleneoxymethy lene)]bis[oxirane]	ACGIH			None established.
DUST, TOTAL DUST	OSHA PEL		15 mg/m3	
	ACGIH TLV		10 mg/m3	
DUST, RESPIRABLE DUST	OSHA PEL		5 mg/m3	- <u> </u>
the the	ACGIH TLV		5 mg/m3	



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### **SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Form

: Pastilles (Beads)

Colour

: Amber

Melting / freezing point

: > 10 °C (> 50 °F)

Flash point

: > 200 °C (> 392 °F)

Relative density

: 1.19

Solubility in water

: Negligible.

### **SECTION 10. STABILITY AND REACTIVITY**

Conditions to avoid

: Avoid high temperatures.

Materials to avoid

 Can react vigorously with strong oxidizing agents, strong lewis or mineral acid, and strong mineral and organic bases, especially primary and secondary aliphatic amines.
 Reacts with considerable heat release with some curing

agents.

Hazardous decomposition

products

: Carbon monoxide, aldehydes, and acids may be formed during

combustion.

Hazardous reactions

: Stable.

Hazardous polymerization will not occur.

### **SECTION 11. TOXICOLOGICAL INFORMATION**

### **Chronic Health Hazard**

Components Concentration Regulation Value Remarks



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	Phenol,	100 %	US. IARC Monographs on	This
	4,4'-(1-methylethyl	• 1	Occupational Exposures to	component
	idene)bis-,		Chemical Agents	has not been
4.7	polymer with			classified by
	2,2'-[(1-methylethy			the
	lidene)bis(4,1-phe			International
	nyleneoxymethyle			Agency for
	ne)]bis[oxirane]			Research on
				Cancer (IARC).

Carcinogenicity

- Recent 2-year bioassays in rats and mice exposed by the dermal route to the diglycidyl ether of bisphenol A (BADGE) yielded no evidence of carcinogenicity to the skin or any other organs.
- : This study clarifies prior equivocal results from a 2-year mouse skin painting study, which were suggestive, but not conclusive, for weak carcinogenic activity.
- : Note: Diglycidyl ether of bisphenol A (BADGE) is a component in all BPA/ECH based epoxy resins.

### **Potential Health Effects**

Inhalation

: Inhalation of dust may cause mechanical irritation of the

respiratory tract.

Skin

: Slightly irritating to the skin.

Eyes

Dust can cause mechanical irritation of eyes.

Ingestion

: Not likely to be a relevant route of exposure.

May be harmful if swallowed.

Aggravated Medical

Condition

: Preexisting eye, skin and respiratory disorders may be

aggravated by exposure to this product.

### **SECTION 12. ECOLOGICAL INFORMATION**

### Elimination information (persistence and degradability)

Biodegradability

Expected to be not readily biodegradable.

Bioaccumulation

Not expected to bioaccumulate significantly.



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**Ecotoxicity effects** 

Toxicity to fish

Expected to be practically non toxic, LC/EC/IC 50 > 100 mg/l.

**SECTION 13. DISPOSAL CONSIDERATIONS** 

Product disposal : If this material becomes a waste, it would not be a hazardous

waste by RCRA criteria (40 CFR 261). Place in an appropriate disposal facility in compliance with local and federal regulations.

Product disposal : Under EPA-RCRA (40 CFR 261.24), a waste containing

Benzene is hazardous (hazardous waste number D018) if it exhibits the characteristics of toxicity as shown by the toxicity characteristic leaching procedure (TCLP). Refer to the latest EPA or state regulations regarding proper disposal. Refer to the

latest EPA or state regulations regarding proper disposal.

**SECTION 14. TRANSPORT INFORMATION** 

CFR\_ROAD NOT REGULATED FOR TRANSPORT

IMDG NOT REGULATED FOR TRANSPORT

IATA\_C NOT REGULATED FOR TRANSPORT

**SECTION 15. REGULATORY INFORMATION** 

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

**Notification status** 

AICS : Listed.

DSL : Listed.

INV (CN) : Listed.

TSCA : Listed.

KECI (KR) : Listed.

7/10



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PICCS (PH)

Listed.

**ELINCS** 

: Polymer exempt.

ENCS (JP).

Listed.

**Notification status** 

Legend

y = Yes (Listed); AICS = Australian Inventory of Chemical Substances; DSL = Canadian Domestic Substances List; INV(CN) = Inventory of Existing Chemicals Substances in China; ENCS(JP) = Japanese Existing and New Chemical Substances; TSCA = Toxic Substance Control Act; EINECS = European Inventory of New and Existing Chemicals; KECI(KR) = Korean Existing Chemicals Inventory; PICCS(PH) = Philippine

Inventory of Chemicals and Chemical Substances

### US. EPA CERCLA Hazardous Substances (40 CFR 302)

Phenol, 4,4'-(1-methylethylidene)bis-, No RQ polymer with 2,2'-[(1-methylethylidene)bis(4,1-phe nyleneoxymethylene)]bis[oxirane]

#### SARA 311/312 Hazards

Acute Health Hazard

# US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372. 65) - Supplier Notification Required

Phenol, 4,4'-(1-methylethylidene)bis-, No De minimis Concentration polymer with 2,2'-[(1-methylethylidene)bis(4,1-phe nyleneoxymethylene)]bis[oxirane]

## US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A)

Phenol, 4,4'-(1-methylethylidene)bis-, Threshold Planning Quantity: No TPQ polymer with 2,2'-[(1-methylethylidene)bis(4,1-phe nyleneoxymethylene)]bis[oxirane]

Phenol, 4,4'-(1-methylethylidene)bis-, Reportable quantity: No RQ polymer with 2,2'-[(1-methylethylidene)bis(4,1-phe nyleneoxymethylene)]bis[oxirane]

**New Jersey Right-To-Know Chemical List** 



#### EPON™ Resin 1009F

Version 14.1 Revision Date 06/02/2007 Print Date 07/03/2007

Phenol, 4,4'-(1-methylethylidene)bis-, Not Listed polymer with 2,2'-[(1-methylethylidene)bis(4,1-phen yleneoxymethylene)]bis[oxirane]

#### Additional Components Not Found In Section 2:

Components	CAS-No.	Concentration	Remarks
Benzene	71-43-2	< 80 PPM	Listed.

#### Pennsylvania Right-To-Know Chemical List

Phenol, 4,4'-(1-methylethylidene)bis-, Not Listed polymer with 2,2'-[(1-methylethylidene)bis(4,1-phen yleneoxymethylene)]bis[oxirane]

#### Additional Components Not Found In Section 2:

Components	CAS-No.	Concentration	Remarks
Benzene	71-43-2	< 80 PPM	Special hazard.

#### Massachusetts Right-To-Know Chemical List

Phenol, 4,4'-(1-methylethylidene)bis-, Not Listed polymer with 2,2'-[(1-methylethylidene)bis(4,1-phen yleneoxymethylene)]bis[oxirane]

#### Additional Components Not Found In Section 2:

Components	CAS-No.	Concentration	Remarks
Benzene	71-43-2	< 80 PPM	Carcinogenic.

# US. California Safe Drinking Water & Toxic Enfor cement Act (Proposition 65) Additional Components Not Found In Section 2:

Components	Concentration	Regulation	Value	Remarks
Benzene	< 80 PPM	US. California Safe Drinking Water & Toxic Enfor cement Act (Proposition 65)	Listed: February 27, 1987	Carcinogenic.



#### EPON™ Resin 1009F

Version 14.1 Revision Date 06/02/2007

Print Date 07/03/2007

HMIS Rating :

Health: 1

Fire: 1

Reactivity: 0

#### **SECTION 16. OTHER INFORMATION**

Reference

Prepared in accordance with 29 CFR 1910.1200.

The information provided herein was believed by Hexion Specialty Chemicals ("Hexion") to be accurate at the time of preparation or prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information, to comply with all laws and procedures applicable to the safe handling and use of the product and to determine the suitability of the product for its intended use. All products supplied by Hexion are subject to Hexion's terms and conditions of sale. HEXION MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY HEXION, except that the product shall conform to Hexion's specifications. Nothing contained herein constitutes an offer for the sale of any product.

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#### **CLOSURE INSTRUCTIONS**

IMPORTANT NOTICE: Please give to person responsible for closing these containers for shipment pursuant to Title 49 Code of Federal Regulations, part 178(c)(a)(ii), you are notified in writing of the type and dimension of closures, including gaskets, needed to satisfy performance test requirements. This includes tightening instructions for closures. You are required to provide closing information to any person to whom this package is transferred who may need to close the package prior to reshipment.

#### ALL UN 1H1 PACKAGES (Plastic 55 Gallon Closed Head Drums)

- 1) Check plugs making certain gasket is properly seated
- 2) Carefully screw in plug to insure no cross threading
- 3) Using a properly calibrated torque wrench, tighten both NPS-fine and/or course-buttress thread plugs to 20 ft/lbs.\*

#### ALL UN 1A1 PACKAGES (Steel 55 gallon Closed Head Drums)

- 1) Check plugs making certain gasket is properly seated
- 2) Carefully screw in plug to insure no cross threading
- 3) Using a properly calibrated torque wrench, tighten "Tri-Sure™ style" 2" plugs with rubber gaskets to 20 ft/lbs, 30 ft/lbs. with polyethylene gaskets; tighten "Rieke™ style" 2" plugs with rubber gaskets to 30 ft/lbs., 40 ft/lbs. with polyethylene gaskets\*
- 4) Using a properly calibrated torque wrench, tighten "Tri-sure™ style" ¾" plugs with rubber gaskets to 12 ft/lbs. 20 ft/lbs. with polyethylene gaskets; tighten "Rieke™ style" ¾" plugs with rubber gaskets 15 ft/lbs., 20 ft/lbs. with polyethylene gaskets\*

\*Torque may change in transit due to weather, filling conditions, temperature and consistency of product filled in packaging. Fillers and shippers of packaging are responsible for closing packagings to the above specification. Container Distributors, Inc. can not be held responsible for closures that do not meet the torque values specified.

# CLOSURE REQUIREMENTS: 1A1/1A2 BUNG CLOSURE

For UN/DOT marked specification containers, the DOT regulations in 49 CFR 178.2 (c) require the packing manufacturer to provide a written notification to customers covering any additional requirements after transfer of the packaging necessary to comply with the performance test requirements indicated by the UN marking on the drum.

Notice: Drums must be closed for shipment by tightening the plugs to the recommended closure torque.

#### Recommended T-Type Closure Torques, ft.-lbs., for Steel Drums

T-Type Steel Plug	<u>3/4"</u>	<u>2"</u>
With Rubber Gasket	12	20
Polyethylene or Teflon Gaskets	20	30
T-Type Polypropylene & Nylon Plugs		
With Rubber Gasket	12	20
Polyethylene or Teflon Gasket	12	30
T-Type Polyethylene Plug-High Density		
With Rubber Gasket	8	15
Polyethylene or Teflon Gasket	8	15
T-Type Self-Gasketing Polyethylene Plug	5	12

Note: Materials classified as "poisonous by inhalation" must be sealed with Tri-Sure® Steel Side Gaskets tab seal caps.

#### Recommended R-Type Closure Torques, ft.-lbs., for Steel Drums

R-Type Steel Plug	3/4"	1 1/2"	<u>2"</u>
With Rubber Gasket	15	30	30
Polyethylene Gasket	20		40
R-Type Plastic Plug			
With Rubber Gasket	9		20
R-Type Self-Gasketing Plug	9		20

Drums bear a DOT/UN specification mark solely on the basis of the use with components specified in design qualification tests. Drums were tested with water and according to specific gravity or marked on the drums and closed according to closure manufacturer's recommendations. Use of these drums and any components supplied in the respect to relevant compatibility is the responsibility of the

#### RINGS FOR 55 AND 30 GALLON DRUMS

A 12-guage ring will require a torque of 60 ft/lbs. to properly close and seal. Do not apply more than the recommended torque, this could cause the bolt threads to strip making it difficult or impossible to remove.

A 16-guage ring will require a torque between 8 and 15 ft./lbs.



#### STEEL DRUM CLOSING STATEMENT CFR'49 PART 178-178.2 © (1) NOTIFICATION

All Steel container should be closed after filling and before transportation in accordance with the tightening torques in Appendix 1.

#### APPENDIX 1

Closing Torques for Plug/Gasket Combinations

PLUG TYPE	GASKETS	TIGHTENING TORQUE		
		¾" Dia Plugs	2" Dia Plugs	
		Ft lbs.	Ft lbs.	
Tri-Sure Steel	Elastomer	8 - 15	8 – 15	
	Thermoplastic	11-18	11-18	
Tri-Sure Plastic	All	8 - 11	8 – 15	
Rieke Steel	Elastomer	15	30	
For 1-1/12" Use 2" Torques	Thermoplastic	20	40	
Rieke Plastic	All	9	20	
Elastomer Gaskets include Nitrile	(Buna), EPDM, VITON and I	Butyl.		
Thermoplastic Gaskets include Po	lyethylene			

OPEN HEAD CONTAINERS

All Open Head containers should have the Locking Ring Bolt torque's checked after filling & before transportation in accordance with Appendix 2.

	APPENDIX 2						
Closi	Closing Torques for Locking Rings for 30 & 55 AG Drums						
BOLT-RING CLOSURE	GASKET TYPES	For the Bolt-Ring locking band, snap the closing ring over the cover and top lip of the drum. Insert the bolt, through the lug without threads. Next, (if applicable) screw on the locking nut. Finally, screw the bolt into the threaded lug. While tightening the bolt, tap the entire perimeter of the ring with a mallet, starting directly across from the bolt. When required, tighten the locking nut 20-25 Ft. Lbs against the unthreaded lug.					
12 GA Forged Lug – X391 55 Gallon Only	½" Diameter (G557)	45 Ft lbs Ring Gap 1/16" to 3/8"					
12 GA Forged Lug "C" Section All Types (55 & 30 Gallon)	All Gaskets Except ½" Diameter (G557)	60 Ft lbs Ring Gap 1/8" to 5/8"					
16 GA Bolt Ring (55 & 30 Gallon)	All Gaskets	8 to 15 Ft lbs Ring Gap 1/8" to 5/8"					
LEVER CLOSURE	GASKET TYPES	For the Lever-Action locking band, snap the closing ring over the cover and top lip of the drum. Pull the locking lever closed, and at the same time, tap the edge of the closing ring, beginning directly opposite the closing lever, with a mallet until the lever is fully closed against the edge of the ring. Snap the latch into the lever until it locks, then apply a seal wire or other sealing device through the hole in the latch lever.					
12 GA Forged Lugs – All Types	All Gaskets	60 Ft lbs Ring Gap 1/8" to 5/8"					
16 GA Bolt Ring - All Types	All Gaskets	8 to 15 Ft lbs Ring Gap 1/8" to 5/8"					

Revision Date 08/21/06 Good Until Cancelled

Testing and Technical Services 366 Greif Parkway Delaware, OH 43015



## GE Betz

# GE Betz Quick Reference Guide

#### **Payment**

**Checks:** Make checks payable to GE Betz, Inc.

We can accept Electronic Funds Transfer for payment if it is sent

using CTX detail.

Credit Card Payments: We accept Master Card, Visa and American Express.

#### Federal ID #

Our GE Betz Federal Identification Number is 23-1503731

#### Remit Addresses

Please insure your remit-to address is one of the following lockboxes:

GE Betz, Inc.

GE Betz, Inc.

GE Betz, Inc.

P.O. Box 846046

7796 Collection Center Drive

P.O. Box 281729

Dallas, TX 75284-6046

Chicago, IL 60693-0077

Atlanta, GA 30384-1729

#### **Orders**

Please send all Orders, Purchase Orders, Electronic Funds Transfer requests and other inquiries relating to orders or invoices to the GE Betz Customer Care Center.

Mail:

GE Betz Customer Care Center

4636 Somerton Road Trevose, PA, 19053-6783

**Phone:** 1-800-736-BETZ (1-800-736-2389)

**Phone:** (Outside of the USA) 215-355-3300

Fax:

215-953-2525

Email: CustomerCareUSA@gesm.ge.com

#### Web Site

Please visit us at www.ge.com for additional GE Betz and GE information, including requests for annual reports.

# Codes for out-of-State Waste Generators and Receivers

Codes for States of the United States			Country Codes (in Order of Assigned Numbers)			
State or Country	Abbre- viation	Generator No.	Receiver No.	State or Country	Generator No.	Receive No.
Alabama	AL	99901	20001	Navajo Nation	99957	20057
Alaska	AK	9 <b>99</b> 02	<b>Z00</b> 02	Puerto Rico	9 <b>996</b> 0	<b>Z0060</b>
Arizona	ΑZ	99904	Z0004	Mexico	99961	<b>Z</b> 0061
Arkansas	AR	9 <b>99</b> 05	Z0005	Japan	<b>9996</b> 2	Z0062
California	CA	9 <b>99</b> 06	Z0006	Canada	99963	Z0063
Colorado	CO	<del>999</del> 08	Z0008	England	99964	Z0064
Connecticut	CT	99909	Z0009	Spain	99965	<b>Z</b> 0065
Delaware	DΕ	99910	Z0010	Virgin Islands	99966	<b>Z0</b> 066
Dist. of Columbia		99911	Z0011	Denmark	<b>99</b> 967	Z0067
Florida	FL	99912	Z0012	Germany	99968	Z0068
Georgia	GA	99913	Z0013	Belgium	99969	Z0069
Hawali	HI	99915	Z0015	Findland	99970	Z0070
Idaho	ID .	99916	Z0016	Netherlands	99971	Z0071
Illinois	IL.	99917	20017	Pacific Islands	99972	<b>ZQ</b> 072
Indiana	IN	99918	Z0018	Venezuela	99973	Z0073
lowa	IA	99919	Z0019	Marshall Islands	99974	<b>Z</b> 0074
Kansas	KS	99920	Z0020	Guam .	99975	Z0075
Kentucky	ΚÝ	99921	Z0021	France	99 <b>97</b> 6	Z0076
kemucky Louisiana	I.A	99922	Z0021	Malaysia	99977	Z0077
Louisiana Maine	ME	99923	Z0022 Z0023	Austria	99978	Z0078
	MD	99924	Z0023 Z0024	Holland	99979	Z0079
Maryland	MA	99925	Z0024 Z0025	Hong Kong	99980	Z0080
Massachusetts		,		Norway	99981	Z0081
Michigan	MI	99926	Z0026	Panama	99982	Z0082
Minnesota	MN	99927	Z0027	American Samoa	99983	Z0083
Mississippi	MS	99928	Z0028	Greece	99984	Z0084
Missouri	MO	99929	Z0029	Peru	99985	Z0085
Montana	MT	99930	Z0030	Brazil	99986	Z0086
Nebraska	NE	99931	Z0031	Offshore beyond 12 mi.	, 22000	99987
Nevada	NV	99932	Z0032	Z0087		33301
New Hampshire	NH	99933	Z0033	Saudi Arabia	99988	Z0088
New Jersey	NJ	99934	Z0034	l lamaica	99989	Z0089
New Mexico	NM	99935	Z0035	Italy	99990	<b>Z</b> 0090.
New York	NY	99936	Z0036	Belize	99991	Z0091
North Carolina	NC	99937	Z0037	Luxemburg	99992	Z0092
North Dakota	ND	99938	Z0038	Haiti	99993	Z0092
Ohio .	OH	99939	<b>Z</b> 0039	1	99994	Z0094
Oklahoma	OK	99940	Z0040	Nicaragua		Z0094 Z0095
<b>Oregon</b>	OR	99941	<b>Z004</b> 1	Australia	99995	
Pennsylvania	PA	99942	Z0042	Sweden	99996	Z0096
Rhode Island	RÍ	99944	Z0044	El Salvador	99997	Z00 <del>9</del> 7
South Carolina	SC	99945	. <b>Z00</b> 45	1		
South Dakota .	SD	99946	Z0046	İ		
Tennessee	TN	99947	Z0047			
Utah	ŲΤ	99949	Z0049			
Vermont	VT	99950	Z0050			
Virginia	VA	99951	Z0051			
Washington	WA	99953	Z0053		•	
West Virginia	wv	99954	Z0054	1		
Wisconsin	WI	99955	Z0055	ł		
Wyoming	WY	99956	Z0056	1		

# CES Environmental Container/Tank Cleaning Price Sheet

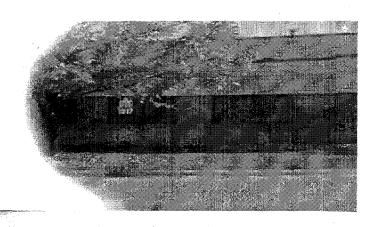
Container Description	<u>Price</u>
Roll-Tarp Box	\$250.00
Vacuum Box/Roll-Top	\$300.00
Dewatering Box	\$300.00
Totes	\$50.00
<del>- Fank-Trailer</del>	
Dry Bulk Trailer	Upon Request
Frac Tank (with reinforcing)	\$500.00
Frac Tank	\$300.00
Internal Cleaning	
1) Air Dry	\$40.00
2) Hot Water Rinse	\$70.00
3) Steam Only (Per Hour)	\$45.00
4) Steam & Dry	\$85.00
5) Rinse Steam & Dry	\$110.00
(each additional compartment for above mentioned)	\$20.00
6) Detergent Wash, Steam & Dry	\$145.00
7) Caustic Wash & Dry	\$140.00
8) Caustic Wash, Steam & Dry	\$160.00
(each additional compartment for above mentioned)	\$25.00
9) Solvent Wash	Upon Request
∠10) Polymer	Upon Request
<u>Trailers Only</u>	
11) Waste Water Surcharge	\$30.00
12) Priority Pollutant	\$50.00
· · · · · · · · · · · · · · · · · · ·	*
External Cleaning	
13) External Tractor Wash	\$35.00
14) External Trailer Wash (with internal wash)	\$30.00
15) External Trailer Wash (without internal wash)	\$40.00
16) Exterior Acid Brite Wash	\$55.00
Heel Surcharge	
Non-Hazardous	\$5.00
Hazardous	\$10.00
<u>Hand Labor (Per Hour)</u>	
17) Not Including Dig out (1 man)	\$42.00 / man
718) Dig out (2 men)	\$70.00 / 2 men 🔀
Miscellaneous Cleaning	
19) Pump	\$15.00
20) Hoses	\$5.00 / hose
21) Fittings	\$15.00 each
22) Hydroblaster (Per Hour)	\$100.00



home

services

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# **Contact Us**

Please contact us for our current prices and freight collect shipping instructions.

Carbide Recycling Company 1917 Best Dr. Walled Lake, MI 48390 (248) 926-5570 (800) 526-3505 Fax: (248) 926-5578 Richard Waldorf, President Katie O'Shea, Purchasing Sara Bernstein, Accounting info@carbiderecycling.com

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#### PRODUCT COORDINATORS:

Boiler – Jeana Fomenko – 215-942-3372 – jffomenko@herc.com

Cooling – Lisa Foster – 215-942-3429 – lafoster@herc.com

Cooling – Amy Morris – 215-942-3165 – amorris@herc.com

Hydrocarbon Process – Barbara Horn – 281-363-7771 – barbara.a.horn@betzdearborn.com

Hydrocarbon Process – Amanda Perez – 281-363-7772 – amanda.perez@BetzDearborn.com

Industrial Process – Marie Buchanan – 215-942-3483 – mabuchanan@herc.com

Metals Process – Loretta Festa – 215-942-3372 – lafesta@herc.com

Waste/Water – Pam Mitchell – 215-942-3553 – pjmitchell@herc.com

#### BETZDEARBORN PRODUCTION PLANTS USA and Canada (Effective March 2002)

The second second	شارفها والمعملية والمستريد والمستريد	and the same of th	Miles Sandy
	USA		
3803100001	333 S. Lombard Rd. ADDISON, IL 60101-3087	630-543-8480 Speed #299 FAX: 630-543-7316	Ernie Trippi - Piant Manager Carolyn Stalcup, Admin. Asst., Denise Badmus, Secty.
3833100001	3050 Pegasus Rd.  BAKERSFIELD, CA 93308-6817	661-393-3035 Speed #417 FAX: 661-393-1290	Brian Banerdt - Plant Manager Patrick Gollihar, Material Planner (2) Sarah Huckabee, Secretary
Emulsion -3835100001 Solution -3835100002	10658 Highway 90 BEAUMONT, TX 77713	409-866-4778 Speed #429 FAX: 409-866-8526	Hern Lorraine - Southwest Regional Manager Pat Landry - Operations Coordinator Kuren Miller, Material Planner Oonna Rutherford, Admin. Asst.
3810100001	2222 Lonnecker Dr. GARLAND, TX 75041-1203	972-271-3603 Speed: #259 FAX: 972-278-5113	Ken Duniap - Plant Manager Wayne Huff, Plant Supervisor Dianna Brooks, Admin. Asst.
3830100001	985 Wheeler Way LANGHORNE, PA 19047-1705	215-750-3700 Speed: #600 FAX: 215-750-3706	Bins Leaby - Plant Manager Shawn McGee, Assistant Plant Manager Christing Morris-Schurer, Material Planner Trish Rafferty, Admin. Asst.
100001808£	7525 NE Industrial Blvd. Route 3 MACON, GA 31206-7727	478-781-8882 Speed: #284 FAX: 478-78#-2562	Dan Brooks - Plant Manager Ted Clements-Assistant Plant Manager Rick Davis, Material Planner /5 Kim Willard, Admin. Asst.
381   100001	2118 Reiser Ave., SE NEW PHILA, OH 44663-3347	330-339-2292 Speed: #107 FAX: 330-339-7631	Greg Grundman - Plant Manager Adam Duckworth, Production Team Leader 14 Chris Haupert, Sr. Secretary., Beth Ann Exley, Secretary.
3809100001	3901 Williams Dr.  ORANGE, TX 77630	409-883-2587 Speed; #111 FAX: 409-883-6766	Mike Strich - Plant Manager Ken Garrison - Assistant Plant Manager / 3 Joan Landry, Material Planner Melunie Simmons, Secretary
3826100001	Mail: P.O. Box 168 Ship: 818 South 32nd St. WASHOUGAL, WA 98671-0168	360-835-8596 Speed: #164 FAX: 360-835-8290	Rick Stover - Plant Manager Mylinn Kraft, Secretary.
3227030008	4636 Somerion Road Trevose, PA 19053-6783	215-953-2366 215-942-3061 215-942-3735 FAX 215-942-3264	Joseph P. Ziegler, Director of Operations. N.A. Keith E. Schwarz, SAP Business Analyst Linda S. Smith, Assistant
	CANADA	3.415 WEG-2 AV GAGA	
3841100001	Bonaventure Industrial Park 13030 148th Street EDMONTON, Alberta T51, 2H8	780-451-4498 Speed: #118 FAX: 780-452-6257	Ron Suntucci, Plant Manager Ken Duke, Production Coordinator Debi Mayes, Material Planner.
3840100003	75 Hymus Blvd. POINTE-CLAIRE, Quebec H9R 1E2	514-694-4416 Speed: #119 FAX: 514-695-1091	Jucques Brouillette, Plant Manager Terry Williams, Production Coordinator Jean-Claude Lalonde, Maintenance Manager

Jon Brandon 562-498-7979 Office \$ bax

#### Internet logons

Site: Viking office products Logon: cesenvironmental Password: (b) (6)

Password:

Site: air.onetravel.com

Logon: ---

Password: (b) (6)

Site: chdist.com Logon: mbowman Password: (b) (6)

Phone Numbers:

Site: jjkeller.com Logon: mbowman

Password: (b) (6)

Site: MSDSonline Logon: MBowman

Password: (b) (6)

Kathy McCammitt	Betz Dearborn Assets	215-953-2414
Chris Mogel	Betz Dearborn Assets	215-953-2379
Pat Duffy	Betz Dearborn Assets	215-953-5501
Phil Watson	Betz Dearborn Assets	215-953-5651 phone 215-953-2525 fax
Fran Wachowski	Betz Dearborn	215-942-3665
Matt - cell		713-826-1329
Sean - cell		713-416-4160
Juanita - cell		281-435-9082
Steve - cell		281-433-7052
Rolando - cell	20	713-444-0703
John Summers		(b) (6) nome cell
Brandon Velek	ChemSep	281-474-4210 phone 281-474-4226 fax
Cindy Graff	Consolidated	800-543-9942 x 3507 972-929-5144 fax
Joe Shearn S	EP&S	800-307-7455 office (b) (6) cell pager 412-279-6047 fax
Bruce Hammock, Jennifer, Kyla	2.5	281-471-5747 phone 281-471-5762 fax
John Brandon	2 00 402 1 00 00 00 00 00 00 00 00 00 00 00 00 0	310-249-5298 pager
		/b\ /@\

Andy-cell

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All Businesses	Sho
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łapa John's Pizza 318) 688-7272 Write a Review	9225 Mansfield Rd Shreveport, LA <u>Map</u>
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(by name or category)  Locations:none selected	

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(Optional)

Address:

Tip: If you specify an address,

we will search for businesses

closest to that address.

Enter the total amount of waste generated during the calendar year for the waste code. This quantity must be equal to or less than the sum of the quantities handled for the same waste code. For example, any waste generated from the previous year that is handled in the current year should NOT be included in the total quantity generated for the current year.

#### **Quantity Handled**

Enter the total amount of waste handled by the receiver or in the on-site management unit with the specified System Type Code during the calendar year for the Waste Code.

#### Units

Enter the Unit of measure for the Quantity Handled. (It must be P (pounds), T (tons), or K (kilograms). This must match the Total Quantity Generated Unit of Measure.

#### Sys Typ Cd - System Type Code

Enter the system type code which describes how the waste was managed. The code should be in box 14 of the manifest. <u>Click here</u> for a list of System Type Codes.

#### Fee

Leave this field blank UNLESS you are claiming an exemption from the hazardous waste generation fee as allowed in 320 TAC §335.323(c),(d) or (e). Enter the number which corresponds to the applicable exemption.

- 1 Exemption for on-site treatment of waste water.
- 2 Exemption for expenditure of funds from the Texas Hazardous and Solid Waste Remediation Fee Fund.
- 3 Exemption for waste recycling.

#### **Facility Num**

Enter the receiver's Solid Waste Registration Number assigned by the TCEQ or your Waste Management Unit sequence number if the waste was managed on-site.

If the waste was shipped off-site, the value entered must be in the TCEQ system as a registered Texas receiver, an out-of-state receiver (D####), (F####) for a Foreign Reciever or RRCOM if the waste was nonhazardous and sent to a facility that is under the jurisdiction of the Texas Railroad Commission. Click here for a list of valid out-of-state receiver codes. For a list of Foreign Codes Click here.

#### Receiver's EPA ID#

If the waste is hazardous and was managed off-site, you must provide the receiver's EPA ID in this field. If it was shipped to a foreign country, enter FC followed by the name of the country.

If the waste is nonhazardous provide the receiver's EPA ID in this field. If no EPA ID exists, enter the company name, city and state in the comment field. You may abbreviate as necessary when entering the company name.

#### **Comments**

The comment field may be used to type the name, city, and state of a waste receiver who does not have an EPA ID. This should only occur it the waste is nonhazardous. Use only one line for comments per Quantity Handled.

Once you have entered all of the information for the waste stream. Click **Save** or Click **Save and View Pending Records**. Repeat the process until you have completed a data entry screen for each waste you generated and/or handled during the reporting year. Remember to include one-time waste codes on your AWS. Do not report on waste codes from your NOR which you did not generate or handle during the reporting year. Once you complete entering your AWS information, click **Submit All Valid Records**. The "Confirm Records to Send to TCEQ" screen will display. Enter your password and click **Confirm Submit**. Once a record has been submitted to the TCEQ it cannot be edited using STEERS. Changes to submitted records must be done on paper.

Help Home IHW Home Close This Window

#### Cooling Tower Water from Oxid Received On 11/23/06 Schedule of Events

- -Jeff Ritcheson set up 3 profiles for Oxid at CES on 11/02/07. The profiles were for tank 19, 105, and 106.
- -Oxid later terminated tank 106 because they claimed the tank was damaged and no longer in use. This tank was a back-up for tank 19-contact waste water.
- -The 2 profiles in question are for tank 105 and tank 19. Both profiles are attached.
- -On several occasions Oxid would swap the usage of these tanks.
- 1. Received call from Betty at Oxid on Thanksgiving Day 2006 (11/23/06) sometime between 1-4 PM.
- 2. Betty asked for CES to pick-up and dispose of the cooling tower waste water. She claimed that they had just emptied the cooling tower, and said they filled it with just water when they noticed a leak in one of the tower.
- 3. At the time, I was over at my brother's (Matt Bowman) house for festivities. I consulted with Matt about receiving these loads and repeated what Betty said to me.
- 4. Matt asked me to ask Oxid if there were any herbicides or biocides present in the cooling tower waste water. Again, Betty said that they had just filled the tower up with water and said that they noticed a leak that needed repair. They had to empty the towers again. Betty also explained that this water normally gets put into tank 105 which CES sometimes processes for Oxid.
- 5. A crew was mobilized to remove the water from Oxid to service the customer.
- 6. Betty also explained that the city had shut down there water discharge permit and the could not discharge. All customers are charged premium rates on holidays and an opening fee.
- 7. CES received and processed these loads which were manifested with a tank 19 manifest which has its own profile. Oxid has and uses preprinted manifests and CES does not always know which water it treats that is picked up that day until the manifest is received. Oxid provides the manifests for all other loads that are transported to other facilities so the disposal could be billed direct to Oxid.
- 8. CES requested a sample of this water in June of 2007 which Oxid provided. Oxid claimed it was the same as received the last time and normally goes to tank 105.
- 9. This sample was kept due to the accusation that CES harmed the city water treatment facility on 11/23/06. There were only 2 waste streams received on that day.
- 10. I was made aware that cooling tower waste water usually contains some kind of biocide our current HSE manger Carl Guidry.
- 11. I remember we had previously asked for a sample of their cooling tower waste water from Oxid due to the fact that we had only received 2 streams on Thanksgiving day of 2006. This sample showed
- 12. A call was made to the Oxid control room to request any and all constituents that may be contained in their cooling water.
- 13. An e-mail from Chris Spacec (Control Room Supervisor) with 2 MSDS sheets attached FBS DJ 121 and FBS 050 as constituents listed in their cooling tower waste water.

- 14. A truck was ordered by Betty at Oxid for loads on 10/16/07 for the following day in which no specific steam mentioned other than waste water.
- 15. A review of the MSDS sheets sent by Chris Spacec sent 12:06PM 10/16/07 reveled that Organophosphates which are used as herbicides.
- 16. A call was made to Betty at Oxid that CES could not receive this water and it was not listed as a constituent on the profile dedicated for the manifest they used. Betty was told shipments must cease immediately.
- 17. At this time she said that is what they had planned to ship to us that day. I was put on hold and asked to talk to Ronnie Cole(production manager). Betty called back latter and said that we were going picking up our regular tank 19 waste waster (contact waste water).
- 18. A message was left on the voice Ronnie Cole's voice mail immediately after the discussion with Betty at Oxid. Ronnie Cole was also told that this water could not be received by CES. None of the constituents in the cooling tower water (MSDS sheets) were listed on any of the profiles they had with CES.
- 19. Ronnie parker called back and stated that this was not water they normally put in tank 105, but is segregated separately from the rest of the waste waters and discharged to the city.
- 20. According to the information I receive from Jeff Ritcheson from Oxid, the city of Houston has shut them down on many occasions prior to getting profiles set-up with CES. Jeff Ritcheson set up the profiles and ran the analysis for Oxid. He was only HSE manager for only a short period of time. Signed profile and Analysis is attached.
- 21. Shortly before setting up profiles for Oxid @ CES. Jeff Ritcheson informed me that Oxid was cleaning up a huge spill due that was going to be fairly expensive to clean up. He also claimed that the city had shut down their discharge to the city of Houston POTW.

#### **CONVERSIONS**

	Commo	n Calculati	ons and Co	nversions					
PAPE	-								
			square met		6.8	lbs per 3,3	00 square fe	eet	
	50	lbs per 3,3	00 square fe	et equals	74.0	grams per	square met	er	
PROD	UCTION								
	A sheet	140	inches wide	, running	1250	FPM, and			lbs
	will prod	uce	6.63	tons of pape	er per hou	ror	159.1	tons per da	y
SPEE	D								
	1000	feet per mi	n equals	5.08	meters p	per second			-
	5000	feet per mi	n equals	1524	meters p	er minute			
	5.08	meters per	second equ	als	1000	feet per mi	nute		
	60	miles per h	our equals	5280.0	feet per r	ninute			
	60	miles per h	our equals	88.00	feet per s	second		-	
	1300	feet per mi	nute equals	14.77	miles per	hour			
	3600	feet per se	cond equals		miles per				
ENG	TH								******
	153	inches equ	als	388.62	centimete	ers	100 centim	eters = 1 m	eter
	4	inches equ	als	102	millimete	rs	10 millimet	ers = 1 cent	imeter
	153	inches equ	als	3.89	meters				
	2800	mm equals	3	110.24	inches				
	100	centimeters	s equals	39.37	inches				
		meter equa		200.79	inches				
		· ·		16	feet	8	and	13	/16ths of
	141.75	inches equ	als	11	feet		and	12	/16ths of
		feet equals		0.44	miles				
		miles equa		7920	feet				
		feet	3	and	7,	/8	inches =	123.875	inches
	3	/4	equals	0.75	·	Ì			
VATE			·						
	2.5	gallon of wa	ater equals	20.85	lbs				
		lbs of water		4.20	gallons				
			of water equa		311.5	lbs			
	1	gallon equa	als	3.79	liters				
		liters equal		1.06	gallons				
	1	gallon of wa	ater equals	0.13	cubic fee	t			
:	1	cubic foot c	of water =	7.48	gallons				
VEIGH	łT i								
	19.5	lb equals	8845.05	grams		PT 18 18 100 Mile of R. Mongaloukoup			
		lb equals		kilograms					
		kilogram ed		2.20	lbs				
		Tons/day e	·			ns per day			
RESS								-44	
		PSI (lbs per	r square inch	n) equals	33.96	feet of water	er .		
			r square inch		27.72	inches of w	/ater		
			r square inch		10.18	inches of n	nercury		
		feet of water				per square i			
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EMPE	RATUR		. 7 - 4				· · · · · · · · · · · · · · · · · · ·		
		degrees F	equals	100.0	degrees (	<u> </u>	Water boils	at 212 deg	rees F
	1500	degrees C	eguais i	2/32.01	degrees I	<del>-</del>	vvater free:	zes at 32 de	earees r

#### CONVERSIONS

	144	square in	ches equals	1.00	square fe	et			
		square fo		-	square ir				
		acre equa			square fe				
4		square fe		-	acre	T			
VOLUM									
	1,728	cubic inch	es equals	1	cubic fee	t			
	1	cubic foot	equals	1,728	cubic inc	hes			
		cubic feet		1	cubic yar				
		cubic yard		27	cubic fee				
		cubic cen			cubic inc				
		cubic inch	es equals	196.7	cubic cer	ntimeters			
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	circle		inches arou				in diameter		
	circle		3 inches in di						
	circle		inches in di						
	phere		inches in di						
Α	wall		feet long		feet high	12	inches wide	e	
		equals		cubic feet					
		equals		cubic yards					
A	cone		inches high			diameter at	the base		
		equals		cubic inches					ļ
A cyl	inder		feet long			diameter			<u></u>
		equals		cubic inches	3				
		equals		cubic feet					
ED 4 0 = 1	0110	equals	22.95	gallons					
FRACTIO	UNS		· · · · · · · · · · · · · · · · · · ·						
1/	16 =	0.0625	5/16 =	0.3125	9/16 =	0.5625	13/16 =	0.8125	
1/	8 =	0.125	3/8 =	0.375	5/8 =	0.625	7/8 =	0.875	
3/	16 =	0.1875	7/16 =	0.4375	11/16 =	0.6875	15/16 =	0.9375	
1/	4=	0.25	1/2 =	0.5	3/4 =	0.75	1=	1	

# CES Environmental Services, Inc. 4909 Griggs Road, Houston, TX 77021

Bob Hunt Deputy Assistant Director Public Works and Engineering Industrial Wastewater Service 10500 Bellaire Blvd. Houston, TX 77072

#### February 28, 2007

On February 9<sup>th</sup>, CES received a letter from the City alleging several violations and other concerns. We initiated our investigations on these issues and our preliminary findings specific to each allegation are attached as Exhibit 1.

While CES does not necessarily agree with the data and/or conclusions alleged in the City's letter, we have acted quickly to satisfy the City's concerns. These actions, on-going and planned, include:

- Test all inbound loads; reject, or process through third-parties, waste streams with high TOC and/or Phenol above 10ppm.
- Request assistance from our customers in identifying potential sources of phenol.
- Internally testing every batch (metals and oil and grease) prior to release.
- Independent lab testing (daily) of samples taken from sample point A.
- Establish 24-hour video monitoring of the new sample point to eliminate possibility of tampering.
- While responding to these issues, we've reduced our wastewater processing by 85%.
- CES will fund a 3<sup>rd</sup> party study to identify and propose solutions to increase CES's processing capacity without adversely impacting the City.
- Purchase additional capacity (if available) and manage operations to optimize existing capacity.
- Recent investigations uncovered test differences between the CWT sample point and sample point A. Findings suggest that CES may have underpaid sewer charges. CES will review the data and propose a solution to satisfy reasonable back charges.
- CES considers tampering allegation to be the most severe. We do not believe that anyone at CES was involved with tampering; however, we will take the following steps to fully investigate these allegations and determine what happened or likely happened. The importance to CES of proving or disproving these allegations cannot be understated.
  - o CES will engage an independent resource to investigate the issue and render an opinion. The resource hired will have complete access to all resources and data available to CES.
  - We will immediately divert key parties managing and running the waste water plant operations to other activities. These parties will not enter the waste water processing building until we conclude our investigation.
  - o If there is proof of tampering, CES will take disciplinary action up to and including termination.
  - We have established signed affidavits (Exhibit 2) from all parties involved in the waste water processing operation. According to these affidavits, none of the employees have
    - tampered with samples
    - observed any tampering
    - were instructed to tamper with the sampling

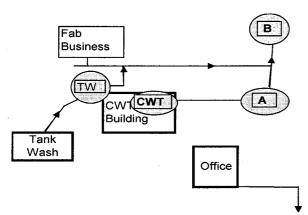
**Exhibit 1:** Response to letter received February 9, 2007 containing allegations associated with disconnection of utility service on February 19, 2007 (water account 5010-0030-201, 0920-2370-109, and 0920-2370-113).

#### **General Response to Allegations**

The City believes that CES is the only contributor to the collection system involving sample points A and B. In fact, most of the city's allegations that CES released concentrations of pollutants in excess of permit limits are based on test data from composite samples taken from sample point B.

We agree that sample point A isolates CES discharge as it is located at the juncture of our private pipe as it enters the City's collection system. We firmly believe – and the City's test date proves – that sample point B incorporates discharge that does not come from CES.

The diagram below provides a brief overview of the flow dynamics associated with the CWT, tankwash and various sample points. In general, the BOD and contaminants associated with the tankwash are much lower (343 BOD average based on City data) than those associated with the CWT facility (10,524 based on City data from sample point A). During the period of testing performed by the City, the flow from the tankwash was about 20,000 gallons per day. Flow from the CWT during this same period averaged about 140,000 gallons per day.



If CES was the only contributor to the collection system, then sample point B would test at slightly lower BOD than sample point A since the low BOD water from the tankwash enters the stream between the two sample points and provides a dilution effect.

The table below indicates the results of tests performed on composite samples taken at sample points A, B, CWT, and tankwash for the date indicated. These test results clearly indicate that one or more parties is contributing pollutants to the waste stream tested at sample point B. Using the estimated flow from tankwash (20,000 gpd) and the CWT facility (140,000 gpd), we've computed the pounds of various pollutants and % loading that came from third parties.

		Sampling Points (ppm)			Other Source		
						Lbs	%
Date	Pollutant	TW	CWT	Α	В	Pollutant	Loading
17-Dec	BOD	104		13,000	14,500	4,153	27%
19-Dec	BOD	360		10,120	10,260	1,815	15%
21-Dec	BOD	221		9,900	10,050	1,815	16%
15-Dec	Zinc			3.71	9.3	8	186%
15-Dec	2-Butanone			0	1.81	2	All
20-Dec	2-Butanone			7.38	9.12	4	41%
15-Dec	Benzene			0	2.74	4	All
21-Dec	Benzene			1.92	3.43	2	104%
15-Dec	Acetone			4.6	8.63	6	114%
21-Dec	Acetone			16.6	25.5	15	76%
15-Dec	Toluene	0.07	0.558	0	0.661	1	All

We know, from plumbing tests performed at our request (see Exhibit \_\_\_\_), that at least one other business contributes waste to the sewer line on Wayland. This discharge combines with CES tankwash discharge and enters the main sewer line between sample points A and B. This is a trash hauling and fabrication business that uses zinc and nickel-based paints along with lubricating oils and greases.

The other concern about the source of the readings at sample point B is frequent clogging of the line to the west of the manhole. This results in a mixed discharge that includes CES and several other users. Due to this clogging and associated restricted flow, we believe the line between our discharge point and sample point B is contaminated by heavy accumulations of pollutants which have been deposited over many years of use.

#### Allegations 1 - 3

- 1. CES discharged pollutants (Oil and grease, Zinc, and Nickel) in violation of the permit limits.
- 2. CES discharged pollutants (2- butanone, Acetone, and Phenol) not authorized by their operating permit in violation of the standard of quality provisions of Section 47-194.
- 3. CES discharged pollutants (phenol) in concentrations that caused the City to violate its discharge permit from the Texas Commission on Environmental Quality.

#### **Specific response to Allegation 1:**

Metals - CES uses a physical/chemical precipitation treatment process specifically designed to remove metals. When the automated unit was installed at the end of May 2006, we target analyzed each stream for metals as indicated on customer's waste profiles; we consistently achieved removal levels at or above 98.5%. We have further upgraded this testing procedures to cover the full range of metals for which our discharge is regulated...regardless of what is indicated by the customer profile.

Concerning the Oil and Grease levels, CES has a four-fold hydrocarbon removal process. The first stage involves chemical treatment and heating to break emulsions. The second phase involves gravity separation of phased oil. The third phase is our physical/chemical precipitation process designed to precipitate solids and sink them to the bottom. Our process requires that the vast majority of oil and grease is removed prior to this phase of treatment. Otherwise, concentrations of oil and grease would float solids to the top causing highly visible problems in our treatment system. The final phase is an oil/water separator/clarifier designed to remove any trace residual oils.

Present procedures involve testing every batch (metals and oil and grease) prior to release.

#### Specific response to Allegation 2 & 3:

Phenol is not specifically regulated on our discharge permit, however, high phenol levels will cause treatment issues in the POTW. In Mid-December, the City initiated an investigation on CES's wastewater discharge. During the investigation, the City identified phenol as the source of treatment problems at the City's plant.

The city's test data (not shared with CES until the February 9<sup>th</sup> letter) seemed to indicate that CES was contributing to the phenol problems.

		S	ampling	y Points (p	pm)		
							Gallons
						Lbs	released at
Date	Pollutant	TW	CWT	Α	В	Pollutant	600ppm
14-Nov	Phenol				2300	3,069	613,333
15-Nov	Phenol				36.5	49	9,733
22-Nov	Phenol	0	0.091		172	230	45,867
23-Nov	Phenoi	11.1	0.091		128	169	33,763
25-Nov	Phenol	0.785	0.141		28.1	37	7,467
26-Nov	Phenol	0.402	0.278		18.4	24	4,893
6-Dec	Phenol				72.8	97	19,413
12-Dec	Phenol				145	193	38,667

Using 10ppm as the "threshold" of concern, it is evident that ALL test results over this threshold originate from waste collected at sample point B. Again, we feel very strongly that CES is not responsible for these readings. In fact, the highest phenol levels we've ever tested in any of our waste streams is 600ppm. Using 600ppm as the concentration, we've computed the total volume of discharge required to achieve the indicated test results. The data strongly suggest that the 2300ppm reading on November 14<sup>th</sup> did not originate from CES. Similarly, the phenol readings on November 22, 23, and December 12 are likely the result of a third party (not CES).

Although certain that we did not cause the problem, we nonetheless reviewed customer waste streams and diverted potentially problematic streams (greater than 25ppm) to third-parties outside the City's POTW. In addition, we sent a letter to our customers requesting their assistance in locating potential sources of phenol.

Further, CES now performs a phenolics field test on every in-bound load. In cases where the test fails, CES rejects the load, handles it outside the City's POTW, or isolates the load until an actual GC/MS test can be performed by an independent laboratory to determine the exact level of phenol. We have rejected or re-routed numerous customer loads since receiving the letter setting the 10ppm limit.

#### **Allegation 4:**

4. Because contamination readings at the CWT sample point differ from concentrations recorded at sample point B, the City alleges that CES diluted the BOD and TSS samples at the City's sample point 1 (CWT).

#### Response:

CES has never diluted or tampered with samples. Further, we deny all allegations of systematic/knowing release of pollutants in concentrations that exceed our permit limits or city ordinances.

In fact, the City's allegations of tampering are based on comparison of test data between the CWT sample point and sample point B (see table below). As previously stated, we do not believe it is fair to judge our discharge from sample point B. Test results from sample point B are tainted with third party contaminants which contribute significantly to the disparity in measures.

Every date where significant discrepancies occur is a sample point B comparison. Only one date (December  $15^{th}$ ) compares the CWT test data with sample point  $A - \underline{\text{significantly, on this}}$  date, the results are consistent between the between these two sample points.

		Sampling Points (ppm)				
Date	Pollutant	TW	CWT	Α	В	
15-Dec	Toluene	0.07	0.56		0.66	
22-Nov	Phenol	_	0.09		172.00	
23-Nov	Phenol	11.10	0.09		128.00	
25-Nov	Phenol	0.79	0.14		28.10	
26-Nov	Phenol	0.40	0.28		18.40	
22-Nov	BOD	200.00	495.00		17,800.00	
23-Nov	BOD	326.00	16.00		12,400.00	
25-Nov	BOD	760.00	187.00		12,900.00	
26-Nov	BOD	717.00	330.00		5,650.00	
28-Nov	BOD	850.00	1,088.00	-	4,530.00	
29-Nov	BOD	187.00	7,230.00	11 B	6,650.00	
30-Nov	BOD	290.00	1,150.00		11,400.00	
15-Dec	Toluene	0.07	0,56	ND	0.66	
15-Dec	Ethyl Benzene	ND ·	0.28	ND .	0.21	
22-Nov	Oil & Grease	44.00	18.00		536.00	
22-Nov	Zinc	0.49	0.06		18.80	
23-Nov	Zinc	0.59	0.10		12.80	
25-Nov	Zinc	0.45	0.02		7.00	
26-Nov	Zinc	0.57	0.07		8.17	
28-Nov	Zinc	0.75	2.18		3.90	
29-Nov	Zinc	0.59	4,50		2.78	
30-Nov	Zinc	0.51	1.07		3.06	

Despite our reservations about comparisons to sample point B, our investigation of the allegation revealed that the CWT sample point is not a consistently reliable measure of our discharge quality. On some dates, the CWT test results appear reasonable/accurate (see City's test data for November 29<sup>th</sup> and December 15<sup>th</sup>). Comparison of test data from other dates demonstrates significant disparities. Our own testing between the CWT sample point and sample point B demonstrated similarly inconsistent comparisons. Third-party test results confirmed readings at sample point A.

Our review of the design and procedures associated with the CWT sample point uncovered several flaws which we believe explain the inconsistent test results from this sample point.

- There are two valves used to regulate flow into the open mouth sample collection bucket (one is a ball valve with a lever and the other is the typical garden hose-type). Both of these valves may be set to variable levels of flow. There are no marks or standards set for sample flow into the bucket. The discharge from the spout goes into the bucket, and then the bucket simply

- overflows water continuously onto the floor. This cannot provide a good representative and composite sample.
- CES's operates a batch treatment discharge that is highly variable in terms of the loading and volume and frequency of discharge. The sample meter is continuously immersed in the collection bucket and continuously pulls sample from the bucket (regardless of weather we are actually discharging). The meter samples a fixed amount on a continuous/regular cycle. In order for this design to produce a representative sample, the discharge rate must be constant and continuous. Our operation rarely matches this requirement. For example, the volume of waste discharged at night is typically low with low levels of contamination; however, the volume of sample collected for this release is identical to the amount collected from the day operation which operates at higher volume and higher loading.
- CES's discharge rate is highly variable while the sample spout rate into the collection bucket for any specific sampling event is constant. This arrangement can produce highly inconsistient readings if, for example, a large volume of significantly loaded water is released quickly and a low volume of lightly loaded water is released over a long period of time. In this scenario, the lightly loaded water would be significantly overstated in the composite sample.
- Finally, in an effort to ensure discharge quality, we began cleaning and washing the clarifier/oil/water separator much more frequently sometime around the end of October or beginning of November of 2006. In doing so, the clarifier/oil/water separator is washed down and refilled with clean water to ensure proper function. CES has never and will never adjust, open, or close the sample port during a COH sampling event. Consequently, some clean water does get discharged into the sample collection bucket during these cleaning events.

The issues above will invariably create disparities between contaminant measures collected at the CWT sample point and <u>any</u> sample point collected downstream.

Since inception of operations, CES has monitored and managed industrial waste treatment operations utilizing test data from the CWT sample point. Before our operations began, this sampling point arrangement was examined and approved by the City of Houston. Readings from this sampling point did not indicate that our releases violated any of our permit limits or the City's ordinances. However, due to the design limitations of the CWT sample point, and without our knowledge or knowing participation, actual discharge concentrations may have exceeded concentrations indicated from the CWT test results.

These findings suggest that CES may have underpaid sewer charges. CES will review the data and propose a solution to satisfy reasonable back charges.

#### **Allegation 5:**

CES significantly increased water usage in the period between December 06 and January 07 for the purpose of diluting the BOD and TSS sampling results.

#### **Response:**

Water usage at CES fluctuates drastically from month-to-month based on work being performed. For example, in May 06, we used 213,000 gallons followed by 131,000 and 126,000 gallons in June and July. Several factors have contributed to increased water usage beginning late in 2006:

- several large hydro blasting jobs which are water intensive
- nightly washing of trucks & trailers
- a water leak that was not repaired until January 12, 2007
- jobs that involve processing sludge which is highly water intensive

- in an effort to improve our wastewater processing treatment, we increased the feed line to our wastewater processing equipment and increased the frequency of cleaning (from weekly to daily) – together these increase usage by 210,000 to 285,000 gallons per month.

Although CES has never attempted to "dilute" its discharge or samples, the fact that more water was used might have the effect of <u>slightly</u> "diluting" both the discharge and/or any samples pulled during this period (the approximate amount of water the City alleges CES "overused" could only conceivably dilute the BOD loading by about 10%). Again, any <u>slight</u> "dilution" caused by the higher water usage is simply an unintentional consequence of the operational need for higher water usage rather than a directed and intentional effort to dilute.

#### Allegation 6:

CES used capacity in the sewer system it was not authorized to use.

#### Response:

When CES purchased the property, authorized sewer capacity for the tankwash was 3,662 gallons per day. Prior to our purchase and since we've been operating the facility, the tankwash has discharged between 10,000 and 20,000 gallons per day. On numerous occasions, we have inquired about purchasing additional capacity for the tankwash but have been informed that, "you have enough capacity to do what you are doing". The original capacity of 3662 gallons per day remains in effect today.

On August 26, 2005, CES purchased an additional 15,000 gallons per day of capacity to accommodate the new wastewater & drum facility (receipt from City of Houston is attached). The process to acquire this capacity was extremely confusing and time-consuming...nobody we talked to seemed to know the process for awarding the capacity and receiving payment - we had a hard time finding someone to accept our check. Even though we have the receipt, the increase in capacity was not properly recorded by the City since the February 9<sup>th</sup> letter from the City indicates no other capacity beyond the original 3,662 gallons per day.

Actual discharge has exceeded our purchased capacity. We notified the City of this fact through semi-annual flow reports to the Waste Water Department. The city was aware of, and billing us monthly, for the capacity we used. Consequently, we were not aware of any problems caused by our usage (Letter of February 9<sup>th</sup> is the first time this was mentioned) and felt the city would notify us if our volume was causing problems and when we needed to purchase additional capacity. Precedence for this was established by the way City of Houston handled one of our competitors – LES.

CES would like to purchase additional capacity to meet our actual discharge requirements. CES is currently working with Rudy Moreno to address this issue. We are happy to pay for this additional capacity and are willing to manage our operations to help optimize the available capacity in the system.

Note: The City's effluent meter reading for January 07 appears to be substantially inflated. Our records indicate that we processed and released 3,149,413 gallons from our facility in January. This, in combination with our water usage as reported, should yield a total discharge of 4,384,413 gallons. The city is claiming our discharge volume for January is 5,802,000. The table below illustrates the City's position versus CES position:

Effluent Meter water (... 5109) water (... 0113) Total

	City	
December	January	Average
3,484,000	4,567,000	4,025,500
410,000	524,000	467,000
675,000	711,000	693,000
4,569,000	5,802,000	5,185,500

:	CES	
December	January	Average
3,484,000.00	3,149,413.50	3,316,707
410,000	524,000	467,000
675,000	711,000	693,000
4,569,000.00	4,384,413.50	4,476,707

Days of operation Daily average

24	24	24
	18 PM	46,063

28	27	28
		162,789

#### **Allegation 7:**

CES's discharge is causing the City's sewer system to surcharge and is responsible for creating overflow conditions downstream.

#### Response:

CES admits to having discharged gallons in excess of the capacity established by the City. The quality of our discharge was within the limits of our permit. The city was aware of the usage and billing us appropriately without any notification or comment that our volume of usage could create problems. As far as we know, there were no overflow problems associated with our previous discharge; therefore, we did not anticipate any negative consequences to the city's collection and treatment system. The February 9<sup>th</sup> letter is the first time the City mentioned this issue. Since receiving the letter, CES has significantly reduced the volume of wastewater discharge. We are currently working with the City's collection department to identify solutions for increasing our operational capacity. Until additional capacity is identified, we will operate within the 75,000 average gallons per day limit established by the City.

#### Allegation 8:

CES has caused deposition of oil and grease in the city's sewer system by exceeding their oil and grease limit.

#### **Response:**

The City's sample readings supporting this allegation were taken from sample point B. As previously discussed, this location does not measure/isolate CES's discharge. We believe the readings and pictures (attachment H from City's letter of February 9<sup>th</sup>) depict results of clogging in the sewer line to the west of sample point B.

It is not possible that the oil and grease deposits as shown by the City could have originated as discharge from CES. Even in our pre-treated loads, we did not have any measurements of oil and grease to this magnitude. In fact, there has never been floatable oil detected on any of CES's discharge samples.

#### Allegation 9:

CES has discharged slug loading of pollutants in violation of the slug loading prohibitions in their permit and detailed in City Ordinances.

#### Response:

The calculations used by the city to support this allegation are incorrect. Even the city's inflated readings from sample point B indicate that CES's average BOD level is approximately 10,000 mg/l (calculation used 19.3mg/l – highest of several readings and likely corrupted by discharge from other users). To approximate a more realistic scenario (although still likely to be overstated), CES has restated the calculation using the average readings for sample point B (10,107 mg/l) along with the actual average discharge per day (162,789 gallons— see table contained in response to

allegation number 6). The result is 13,721 pounds of BOD per day which equates to less than 23% of plant capacity. Using this same BOD loading and our current flow capacity (75,000) our discharge represents approximately 10% of the plant's capacity.

- o Going forward, CES plans to manage our waste water processing operations using samples taken at Sample point A. Future testing will be overseen by either Marlin Moser or Greg Bowman.
- CES will cooperate fully with HPD investigation. We understand this may include additional interviews with CES employees involved in the waste water processing operations. Of course, CES counsel will need to be present while HPD is on premises. In addition, as provided for by law, each employee may elect to have their own counsel present during questioning.

We believe these steps, expeditiously executed at <u>considerable</u> cost to CES, demonstrate our commitment to comply with our permit and City ordinances. We believe these steps will insure the CES is the safest and most compliant waste water processing plant in Houston.

We are pleased to continue operating our plant at the City's specified limit of 75,000 gallons per day until such time as additional capacity is available for our use. We look forward to helping the City to arrive at a final resolution of all issues as quickly as possible.

Sincerely;

Matt Bowman
President, CES Environmental Services



# CITY OF HOUSTON.

**Bill White** 

Mayor

Michael S. Marcotte, P.E., DEE Director Public Works & Engineering Department Industrial Wastewater Service 10500 Bellaire Blvd. Houston, Texas 77072

T. 281.575.2800 F. 281.983-6704 www.cityofhouston.gov

#### HAND DELIVERY FOLLOWED BY CERTIFED MAIL-RETURN RECEIPT

February 9, 2007

Matt Bowman, President CES Environmental, Inc 4904 Griggs Road Houston, Texas 77021

Re: Disconnection of utility service on February 19, 2007 at CES Environmental, Inc., 4904 Griggs Road, Houston, Texas (water account 5010-0030-201, 0920-2370-109 and 0920-2370-113).

The City of Houston has been investigating a number of issues regarding CES's discharge to the sanitary sewer. The City alleges that CES violated City ordinances and their industrial waste operating permit No. 9558 for industrial waste discharge to the City's sanitary sewer. These violations are as follows:

1. CES discharged pollutants in violation of their permit limits, specifically as follows (see sampling detail in attachment H):

Date	Oil and Grease Limit 400 (mg/l)	Zinc composite limit 3.0 (mg/l)	Nickel Composite Limit 2.0 (mg/l)
11/14/06	841	15.39	
11/15/06	752	10.00	
11/20/06	690	4.97	
11/21/06		13.50	
11/22/06	536	18.80	•
11/23/06	1050	12.80	
11/25/06	598	7.00	
11/27/06	•	8.17	
11/28/06		3.93	
11/30/06	848	3.06	
12/01/06	824	13.20	

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12/02/06	2600	6.76	
12/03/06	712	6.76	
12/05/06	637	13.90	
12/06/06		9.10	
12/07/06	786	4.04	
12/09/06	634		
12/10/06	1400	4.03	
12/11/06	3100	6.41	
12/12/06	844	145.00	36.60
12/13/06	1260	8.82	
12/15/06		9.30	
12/19/06	410	3.54	

2. CES discharged pollutants not authorized by their operating permit in violation of the standard of quality provisions of Section 47-194 of the Industrial Waste Ordinance and in such concentrations that could endanger the health and safety of the City's workers in the collection system. Those pollutants include but are not limited to the following (see sampling detail in attachment H):

Date	2-Butanone (mg/L)	Acetone (mg/L)	Phenol (mg/L)
11/14/06	•		2300.0
11/22/06			172.0
11/23/06			128.0
11/25/06	•	•	28.1
11/26/06			18.4
12/05/06	518	161	
12/06/06			72.8
12/12/06			51.3
12/13/06			19.9

3. CES discharged pollutants not authorized by their operating permit in violation of the standard of quality provisions of Section 47-194 of the Industrial Waste Ordinance. This discharge was in concentrations that inhibited treatment at our Sims Bayou wastewater plants which caused the City to violate its discharge permit from the Texas Commission on Environmental Quality. Those pollutants discharged include but are not limited to the following (see sampling detail in attachment H):

<u>Date</u>	Phenol (mg/L)
11/14/06	2300.0
11/15/06	36.5
11/22/06	172.0
11/23/06	128.0
11/25/06	28.1
11/26/06	18.4
12/06/06	72.8
12/12/06	51.3
12/13/06	19.9

4. CES diluted the BOD and TSS samples at City's sample point # Iwhich is the discharge from the centralized waste treatment facility to avoid a surcharge on their BOD and TSS. CES underpaid the City \$480,589.59 on water account # 5010-0030-201 (CWT discharge meter) during the period of December 2005 through January 2007 due to this dilution. The details are as follows: (see sampling detail in attachment H and surcharge calculation worksheet attachment B):

	BOD	TSS	Rate per
Time period	Avg. (mg/	(l) Avg.	(mg/l) 1,000 gal.
Prior to 11-2006 investigation (sample point. # 1)	220	120	\$4.64
After 11-2006 investigation (sample point #1)	1,499	160	\$5.55
11-13-06 to 12-21-06 (Manholes downstream from CWT)	10,288	1,334	\$25.30

The City has determined based on televising the sewer lines on Griggs Road to a point three manholes downstream of the main driveway to CES that there are no other connections on Griggs Road to our sanitary sewer system other than CES's connection for the CWT facility. The televising of sewer lines in Wayland also revealed that CES is the only customer connected to our sewer lines on Wayland. Samples obtained by the City in the 3 manholes downstream of CES's driveway on Griggs Road are representative of CES's discharge. Therefore, the sampling the City conducted in the manholes is representative of CES's discharge and not the diluted samples at sample point # 1. As an example for visual evidence of dilution see attachment C which are photos of a 24 hour composite sample from point # 1 compared to the manhole downstream collected during the same time period. The CWT 24-hour composite sample is virtually clear water and the 24-hour composite sample from the manhole downstream is dark in color. We have numerous photos on different dates visually demonstrating this dilution. As further evidence, when reviewing the data on attachment H, there is a clear pattern with numerous days of dilution when you compare analytical results from sample point # 1 against the results in the manholes. The only way this could happen is by the addition of clear potable water to the plastic sample container at sample point # 1 (see attachment D) where the City's composite sampler was sampling. The long history of low BOD and TSS results from sample point # 1 resulting in no surcharges compared to the high BOD and TSS results we obtained downstream point to intentional dilution and avoidance of surcharges by CES.

5. CES began diluting their total discharge in violation of their permit and the industrial waste ordinance after we initiated our investigation in November 2006 by increasing the use of City water by 369,500 gallons per month for the purpose of diluting the BOD and TSS sampling results. See data listed below and attachment D:

Water acct. # 0920-2370-109 consumption average 8-06 through 11-06
Water acct. # 0920-2370-109 consumption average 12-06 through 1-07
Increase per month after CES was aware of our investigation
97,500 per month
467,000 per month
369,500

6. CES started using capacity in the sewer system it was not authorized to use nor did CES pay for the capacity they are using as demonstrated below. (see attachment E for reserved capacity letter authorizing only 3,662 gallons per day):

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Authorized capacity granted by the City =

3, 692 gallons per day.

Average gallons per day discharged December 2006 and January 2007 = 216,000 gallons per day.

		12-06 Monthly	1-07 Monthly	Average Monthly
Acct #	Location served	Discharge	Discharge	12-06 to 1-07
5010-0030201	Effluent meter	3,484,000	4,567,000	4,025,500
0920-2375109	CWT, vehicle and drum	410,000	524,000	467,000
0920-2370113	Office/tank truck cleaning	675,000	711,000	693,000
Overall average	sewer discharge per month			5,185,000
	arge gallons per day with 2			216,000

Analysis of the sanitary sewer lines by the City's Utility Analysis Section of Public Works (the group that reserves and commits the City to capacity to customers) reveals that no additional capacity other than the original 3,692 gallons per day is available on the sanitary sewer lines that serve CES (see attachment A).

- 7. CES's discharge is causing the City's sewer system to surcharge and is responsible for creating overflow conditions downstream from their discharge due to CES's discharge being 58 times higher than what was authorized.
- 8. CES has caused deposition of oil and grease in the City's sewer system by exceeding their oil and grease limit (see sampling detail attachment H). Photos of our sampling equipment show the equipment is covered top to bottom with oil and grease. The sampler was at the top of the manhole downstream from CES approximately eight feet above the top of the sewer line elevation. This demonstrates the manhole surcharged and the oil and grease deposition (see attachment H). Several City employees have observed on a number of occasions the surcharged condition reaching the top of the manholes while CES is discharging.
- 9. CES has discharged slug loadings of pollutants in violation of the slug loading prohibitions in their permit and Section 47-194 of the Industrial Waste Ordinance resulting in the City violating it's operating permit from TCEQ. (see sampling results attachment H). The Sims Bayou South wastewater plant has an influent BOD loading capacity of 59,000 pounds per day at it's TCEQ permitted 30.0 MGD. CES's slug loadings of 19,300 mg/l of BOD at 0.216 MGD (216,000 GPD) is 35,000 pounds of BOD per day or the equivalent of CES using 60% of the organic loading capacity of the plant. In simple terms this converts to the equivalent of CES using 18.0 million gallons per day of the permitted 30 MGD plant at this BOD strength while only having 3,692 gallons per day authorized. (see attachment A)

10. CES failed to obtain authorization from the City for increased loadings of flow, organics and solids as required under permit 9558.

Due to the numerous issues listed above demonstrating CES's violation of the City's ordinances and permits for discharge to the City sanitary sewer, we are taking enforcement action in accordance with Article V Chapter 47 Section 47-205 of the City Code of Ordinances. CES's water and wastewater service will be disconnected on February 19, 2007. You are hereby notified of your right under Section 47-208 of the ordinance to appeal this decision within 10 days of this notice. As provided for in Section 47-208, if you appeal this decision to terminate service, the termination of service will be delayed at least until the date set

by the utility official for the hearing. Please see part 2 of your Industrial Waste permit No. 9558 for Sections 47-205 and 47-208.

If you have any questions, please contact me at (281) 575-2824.

Sincerely;

Bob Hunt

Signature

Deputy Assistant Director Public Utilities Division

Public Works and Engineering Department

BDH/bdh

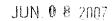
cc: I.W. permit file No. 9558 Ceil Price

> Jeff Taylor Roger Whitney Willie Horton Gurdip Hyare Susan Karlins Ed Rutland

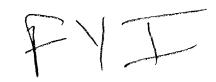
Printed Name of	CLS Employee	
Signature	Date	Time
Witness of deliv	ery by City re	oresentative:

Date

Time







# CITY OF HOUSTON-

Department of Health and Human Services

**Bill White** 

Mayor

Stephen L. Williams, M. Department of Public H. Engineering 7411 Park Place. Rm. 1 Houston. Texas 77087 T.713.640.4276 F.713.640.4388 www.houstonhealth.org

June 06, 2007

#### NOTICE TO TRANSPORTERS THAT CLEAN INTERCEPTORS (GREASE/GRIT/LINT TRAPS)

On May 2, 2007 the Houston City Council approved a revision to Article XI Chapter 47-411 through 47-561 Transportation and Treatment of Certain Wastes (FOG Ordinance). This revised ordinance is now in effect. The cestablishes among other things, an annual permit fee and minimum maintenance standards for interceptors (grease/grit/lint tritems you should be aware of when consulting with your clients are as follows:

- 1. An <u>annual permit application</u> (one page form, see Sec. 47-422) will need to be submitted along with the <u>annual per of \$50 for each interceptor</u> (see Sec. 47-423). Future renewal notices will be sent by the Health Department 60 days the due date. The application form is attached to this notice and is available online at the web link below. Please note, commercial food dealers are not required to submit annual permit applications for grease traps as their fee will be assert upon renewal of their annual food dealer's permit.
- 2. The <u>interceptor will require quarterly cleaning</u> (see Sec. 47-512) unless a Notice of Waiver (see Sec. 47-512(e) and been submitted which would then reduce the annual cleaning frequency to twice per year. The form for the Notice of V is attached to this notice and is available online at the web link below.
- 3. Whenever 25% or more of the interceptor contains solids, etc. then the interceptor will need to be cleaned (see Sec. 47-(c)(1)).
- 4. Although the ordinance was passed May 2, 2007, the initial permit application and \$50 fee will not be due until July 1, for facilities with grit/lint traps. (not commercial food dealers grease traps which will be assessed upon their food dealer permit renewal beginning June 2007).
- 5. The first "proof" (manifest documentation) of quarterly cleaning will not be required to be demonstrated until August 20 an interceptor (trap) owner does not submit a Notice of Waiver form. If the interceptor (trap) owner submits a Notice of Waiver, then the first "proof" (manifest documentation) of semi-annual (180 day) cleaning will be required by November 2007.

For your convenience, the interceptor (grease/grit/lint trap) cleaning and maintenance requirements are printed on the reverse this notice.

The complete amended ordinance, the permit application and the waiver form may be retrieved from this web link <a href="http://www.houstontx.gov/health/Environmental\_index.html">http://www.houstontx.gov/health/Environmental\_index.html</a>

Please call Mike Dedeke or LaNiece Blue at 713 640 4399 if you have any questions want more information regarding this ordinance. Thank you

#### Sec. 47-512. Cleaning and maintenance requirements.

- (a) Generators shall clean or cause to be cleaned, each interceptor and holding tank as often as necessary comply with the effluent discharge parameters in this article to ensure that sediment and floating materia do not impair the efficiency of the interceptor, and to ensure that no visible fat, oil or grease (FOG) is observed in the sample well.
- (b) Each interceptor or holding tank shall be fully evacuated at least once every 90 days.
- (c) Each interceptor or holding tank shall be fully evacuated more frequently than once every 90 days when:
  - (1) Twenty-five percent or more of the wetted height of the grease trap or interceptor, as measu from the bottom of the device to the invert of the outlet pipe, contains floating materials, sedime oils or greases; or
  - (2) The discharge exceeds the discharge parameter set in this article; or
  - (3) There is history of non-compliance.
- (d) If the volume of the interceptor is greater than the tank capacity of the transporter's vehicle, then the generator or transporter shall arrange for additional transportation capacity so that the interceptor is full evacuated within 24 hours after the time the generator notifies the transporter, or the transporter become aware, that the tank capacity of the transporter vehicle is insufficient.
- (e) The health officer shall waive compliance with the requirements of subsection (b) of this section if the generator submits to the health officer a completed "Notice of Waiver (NOW)" form as provided by the health officer, which may be in an electronic format, unless the NOW is denied within 30 days of receipt by the health officer. If the health officer denies the notice of waiver of the requirements of subsection (b) of this section, the NOW shall be returned to the generator and the health officer shall state the reasons for the denial, which shall be consistent with this article. An approved NOW shall remain in effect until revoked by the health officer. Revocation of the NOW must be based on violation of this article. A generator may not resubmit a NOW form until six months from the date of revocation. The NOW form shall recite the elements of this subsection (e) and will include the following certifications:
  - (1) The generator section of the form shall require the generator to certify that it has not had any overflow or discharge at the site during the previous 12-month period; and
  - (2) The generator's transporter section of the form shall require the transporter to certify that, based on the transporter's judgment, at the generator's site, the frequency of cleaning is sufficient to:
    - a. Produce an effluent in consistent compliance with the discharge parameters in this article, or
    - b. Demonstrate that less than 25% of the wetted height of the entire grease trap or interceptor, as measured from the bottom of the device to the invert of the outlet pipe, contains floating materials, sediment, oils or greases.
- In any event, a grease trap or holding tank shall be fully evacuated, cleaned, inspected, and, if needed repaired or otherwise maintained, at least once every 180 days.
- (g) All grease trap or interceptor waste shall be properly disposed of in accordance with federal, state or local regulation.
- (h) No generator or Class A site operator shall remove or cause or allow any person to remove waste from an interceptor on the site, unless the entire contents of the interceptor are removed from the site. It is the express intent of this section to prohibit the use of 'mobile processors' and other devices that purport to separate waste or de-water the contents of an interceptor and leave a portion of the materials at the site.



## Help Home IHW Home Close This Window TCEQ STEERS Help



## **IHW Annual Waste Summary**

## **Annual Waste Summary (AWS)**

- Creating AWS from APF data
- Creating AWS from Scratch
- Updating an Existing AWS which has not been submitted to the TCEQ
- Correcting a TCEO Error Record
- No Report Required
- Common Questions and Answers
- Field Definitions

## Creating the AWS from Scratch

Click **AWS** at the top of the screen. The "Annual Waste Summary" screen will be displayed. If you have an existing Annual Waste Summary from a previous year, you can search for it on this screen. Since you are creating your Annual Waste Summary from scratch, you will not have any records to search for in the "Work Area".

In the "Work on Annual Waste Summary" section, located at the bottom of the page, select the year for which you wish to report. Click Create New AWS. The "Create New Annual Waste Summary for Year (The year you selected)" screen will display. Click Create AWS. The "Add Waste Code to Annual Waste Summary" screen will display. Enter the following information in the corresponding fields. For a detailed field definition click on the link provided where applicable. One detail record should be entered for each unique system type code for each off-site receiving facility and each on-site waste management unit that managed the waste. Quantities shipped to an off-site receiver with more than one applicable system type code should only be accounted for once using the most appropriate of the multiple system type codes.

#### Texas Waste Code

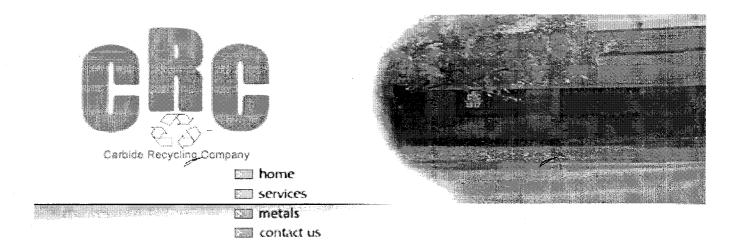
The Texas waste code is an 8-character code. The waste code is located in box I of the manifest. [Note: Manifests not bearing a Texas Waste code are in violation of 30 TAC §335.10(b)(22)].

#### **EPA Hazardous Waste Number**

If the waste is hazardous, at least one EPA hazardous waste number is required. These codes may be found in box 9b, 13 and/or 14 on the manifest. If more than 4 codes are listed on the manifest, use the four codes that best describe the waste.

If the waste is nonhazardous, EPA hazardous waste numbers are not applicable. Thus, no EPA hazardous waste numbers should be provided.

#### **Total Quantity Generated**



## Contact Us

Please contact us for our current prices and freight collect shipping instructions.

> Carbide Recycling Company 1917 Best Dr. Walled Lake, MI 48390 (248) 926-5570 (800) 526-3505 Fax: (248) 926-5578 Richard Waldorf, President Katie O'Shea, Purchasing Sara Bernstein, Accounting info@carbiderecycling.com

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Charlett-Melting Pot 936-271-74/6

Katy-5090 Carbide

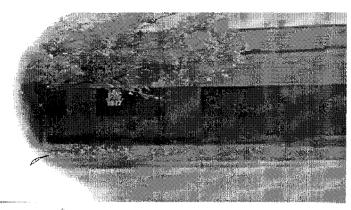


Carbide Recycling Company

services

metals

**contact us** 









## **Our Business**

What We Do

Carbide Recycling Co. (CRC) specializes in the recycling of Tungsten Carbide hard scrap and grinding sludge. We purchase scrap carbide inserts, end mills, drills, tooling, PCB drills (with and without the Teflon rings), wear parts, dies, saw tips, blanks, rounds, etc. In addition to carbide, we also purchase High Speed Steel scrap, Nickel, Tungsten and Cobalt alloys.

find out more

**Scrap Metal Purchasing** 

We purchase scrap metals from every state in the USA and Canada. Depending on your location and material quantity, we can pickup your scrap at no additional charge or provide you with Freight Collect shipping instructions. In addition to the USA and Canada, we purchase scrap material worldwide and have the knowledge and experience with import and export requirements. The following is a partial list of countries we have done business with: Mexico, Brazil, India, Turkey, Israel, Singapore, Germany, Japan, Korea, Puerto Rico, Taiwan & China.

About Us

We have been in business over Detroit, Michigan area. We are D listed and are a member of the E Bureau.

Click the logo below for a free B Carbide Recycling Co.

-> find out more

Home | Services | Metals | Contact Us

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#### SWOT-LES

#### Strengths

- -Can take Municipal wastes and greases
- -Good location in a good market
- -Have been around a while and have a good reputation
- -Decent hours of operation
- -Decent sized company with many locations
- -Can treat oil and metals subcategories
- -Can treat wastes high in solids (Drying Pit)
- -Reasonably priced
- -Have good sized transportation fleet
- -Have great equipment (Trucks, trailers, etc.)
- -Have good treatment capabilities and lots of storage tanks (can discharge high volumes)
- -Trailers can hold good sized loads (6500 gallon aluminum trailers and light trucks-can haul 6200 gallons)
- -Work with tons of brokers who bring lots of business

## Weaknesses - Hire more knowledgable sales staff.

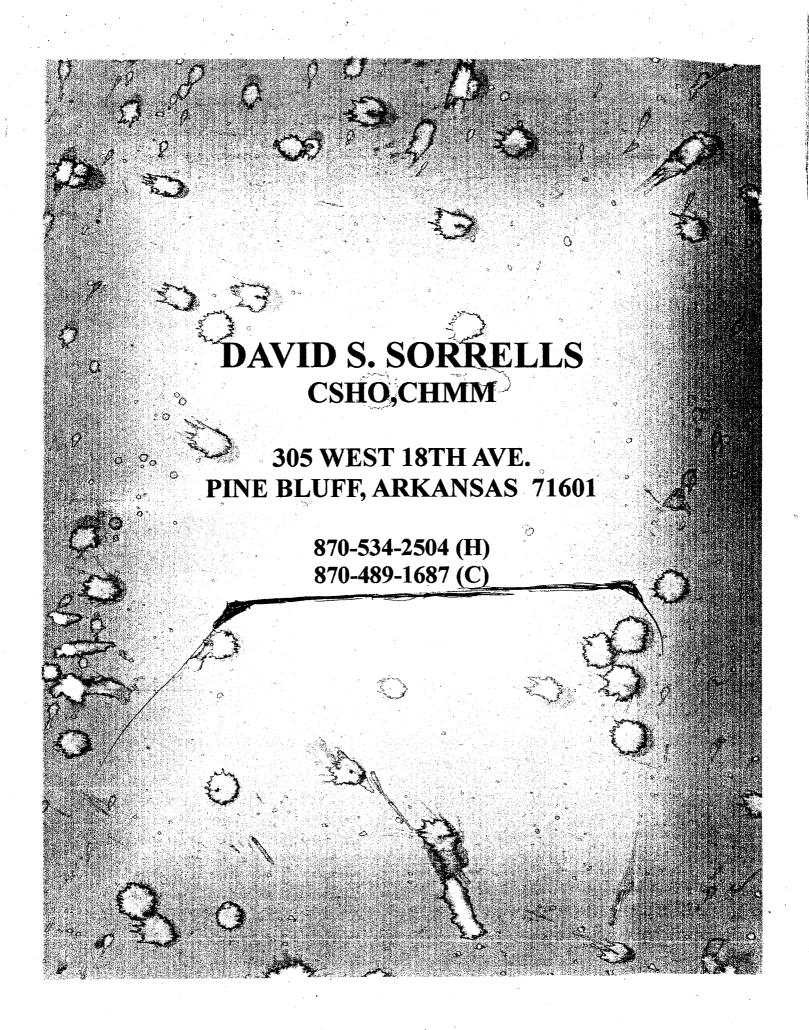
- -Cannot treat organics category
- -Does not have very good capabilities with drums
- -Management tends to limit their true capabilities with the directions they go with things
- -Do not have a highly knowledgeable sales staff
- -Will not take streams with low flashes that may be alcohols or recyclable hydrocarbons
- -Have limited capabilities with their equipment (No Air Machines, Vac boxes, etc.)
- -Does not do a lot of brokering of wastes
- -Cannot treat hazardous wastes and does not broker hazardous wastes
- -Location (get lots of odor complaints)
- -Limited capabilities with oils subcategories (No centrifuge or distillation unit to handle certain types of emulsions)
- -Size of company causes limitations on branches to make changes quickly
- -Their plant stinks horribly
- -Aging equipment
- -Working with brokers lowers profitability
- -Have no field services capabilities
- -Broker out a lot of transportation

#### **Opportunities**

- -Expansion into the metals subcategory (This is a new capability for them)
- -Their equipment has the capability to deal with organics-can modify their permit
- -Expand to have better capability to deal with drums
- -Buy more equipment to extend their capabilities (Air Machines, etc.)
- -Can look for more opportunities to broker hazardous wastes
- -Has the money to open more plans in the area and expansion into other markets
- -Can expand into a field services market

#### **Threats**

- -Other treatment plant openings could take away business (Intergulf, Beeline, Old Houston Chemical Plant)
- -Odor complaints and spills (have had spills lately)
- -Disadvantages in the drum market
- -Regulatory changes
- -Negative changes in certain markets affect profitability (Ex. Oil market falling)
- -Larger companies have better capabilities to get national contracts reducing business



18

3-3-05- Brundon aucta) 154/64/104

## **Weatherford**

Weatherford International Ltd. 4420 South Flores Road Elmendorf, Texas 78112 USA

**Engineered Chemistry** 

Steven R Terry QHSSE Coordinator

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- +1.210.389.3759 Cell

steven.terry@weatherford.com www.weatherford.com

38-EXISTS 36-IG 35-NP



## MATERIAL SAFETY DATA SHEET

## In Case of Emergency, Call

1-800-888-8372

Syngenta Crop Protection, Inc Post Office Box 18300 Greensboro, NC 27419

#### 1. CHEMICAL IDENTIFICATION

Product Name:

**BANNER GL** 

Product No.: A8969C

EPA Signal Word:

Warning

Active Ingredient(%):

Propiconazole (41.8%)

CAS No.:

60207-90-1

Chemical Name:

1-[[2-(2,4-dichlorophenyl)-4-propyl-1,3-dioxolan-2-yl]methyl]-1H-1,2,4-triazole

Chemical Class:

Triazole Derivative Fungicide

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

OSHA

ACGIH

NTP/IARC/OSHA

Material

PEL

TI V

Other

Carcinogen

n-Butanol

100 ppm

50 ppm (Ceiling;Skin)

Not Established

No

Propiconazole (41.8%)

Not Established

Not Established

Not Established

No

#### 3. HAZARDS IDENTIFICATION

#### Symptoms of Acute Exposure

Exposure to this product may cause eye or skin irritation. If swallowed, abdominal pain, nausea, gastritis, breathing difficulty or diarrhea can occur. The solvent in this product can cause a chemical pneumonitis if aspirated. Prolonged inhalation of vapors can cause respiratory tract irritation and central nervous system depression, resulting in headache, dizziness, blurred vision, confusion or nausea.

#### Hazardous Decomposition Products

Can decompose at high temperatures forming toxic gases.

#### Physical Properties

Appearance:

Dark blue to dark blue-green liquid (gel)

Odor:

Strong solvent

#### Unusual Fire, Explosion and Reactivity Hazards

This product ia an NFPA Class II Combustible Liquid.

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

#### 4. FIRST AID MEASURES

If poisoning is suspected, immediately contact a physician, the nearest hospital, or the nearest Poison Control Center. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given.

Ingestion:

If swallowed: Call Syngenta (800-888-8372), a poison control center or doctor immediately for treatment advice. Have the person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so after calling 800-888-8372 or by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

Product Name:

**BANNER GL** 

Page: [

Eye Contact: If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses,

if present, after 5 minutes, then continue rinsing eye. Call Syngenta (800-888-8372), a poison control center

or doctor for treatment advice.

Skin Contact: If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-

20 minutes. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.

Inhalation: If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial

respiration, preferably mouth-to-mouth if possible. Call Syngenta (800-888-8372), a poison control center or

doctor for further treatment advice.

#### Notes to Physician

There is no specific antidote if this product is ingested.

Check for possible mucosal damage before beginning gastric lavage.

If inhaled, observe for delayed onset of pulmonary edema.

Treat central nervous system effects symptomatically.

Contact with eyes may require specialized ophthalmologic attention.

An aqueous suspension of activated charcoal can be administered to absorb remaining toxicant.

Induction of emesis is not recommended due to the large amount of solvent in this product, which could cause chemical pneumonitis if aspirated. If ingested, lavage stomach, taking care to avoid aspiration of stomach contents into the lungs.

#### Medical Condition Likely to be Aggravated by Exposure

Individuals with pre-existing dermatitis should use extra care in handling this product.

#### 5. FIRE FIGHTING MEASURES

#### Fire and Explosion

Flash Point (Test Method):

106 °F (Setaflash)

Flammable Limits (% in Air):

Lower: %; Upper: % Not Available

Autoignition Temperature:

Not Available

Flammability:

Not Applicable

#### Unusual Fire, Explosion and Reactivity Hazards

This product ia an NFPA Class II Combustible Liquid.

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

#### In Case of Fire

Use dry chemical, foam or CO2 extinguishing media. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. If water is used to fight fire, dike and collect runoff.

#### 6. ACCIDENTAL RELEASE MEASURES

#### In Case of Spill or Leak

Control the spill at its source. Contain the spill to prevent it from spreading, contaminating soil, or entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Section 8. If a solid, sweep up material and place in a compatible disposal container. If a liquid, cover entire spill with absorbing material and place into compatible disposal container. Scrub area with hard water detergent (e.g. commercial products such as Tide, Joy, Spic and Span). Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.

#### 7. HANDLING AND STORAGE

Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

#### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Product Name: BANNER GL

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION AND PACKAGING OF THE PRODUCT.

FOR COMMERCIAL APPLICATIONS AND ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

Ingestion:

Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for

exposure to the material. Wash thoroughly with soap and water after handling.

Eye Contact:

Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should

be equipped with an eyewash facility and a safety shower.

Skin Contact:

Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and

chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

Inhalation:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below exposure limits. Concentrate can dry to a highly irritating dust. A NIOSH-certified combination airpurifying respirator with an N, P or R 95 or HE class filter and an organic vapor cartridge may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a pressure demand atmospheresupplying respirator if there is any potential for uncontrolled release, exposure levels are not known, or under any other circumstances where air-purifying respirators may not provide adequate protection.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:

Dark blue to dark blue-green liquid (gel)

Odor:

Strong solvent

Melting Point:

Not Applicable Not Available

Boiling Point:

Specific Gravity/Density: 8.54 lbs./gallon

4-7(1% solution in H2O)

Solubility in H2O

Propiconazole

: 0.100 g/L @ 68°F (20°C)

Vapor Pressure

Propiconazole

: 1.30E-04 Pa @ 68°F (20°C)

#### 10. STABILITY AND REACTIVITY

Reactivity

Stability:

Stable under standard conditions.

Hazardous Polymerization:

Will not occur.

Conditions to Avoid:

None known.

#### **Hazardous Decomposition Products**

Can decompose at high temperatures forming toxic gases.

#### 11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies

Ingestion:

Slightly Toxic

Oral LD50 (Rat):

2,750 mg/kg body weight

Dermal:

Slightly Toxic

Dermal LD50 (Rabbit):

> 2,020 mg/kg body weight

Inhalation:

Slightly Toxic

Inhalation LC50 (Rat):

> 2.5 mg/l air - 4 hours

Eye Contact:

Moderately Irritating (Rabbit)

Skin Contact:

Moderately Irritating (Rabbit)

Skin Sensitization:

Not a Sensitizer (Guinea Pig)

Mutagenic Potential

Propiconazole:

None observed

Product Name:

**BANNER GL** 

#### Reproductive Hazard Potential

Propiconazole:

None observed

#### Chronic/Subchronic Toxicity Studies

Propiconazole:

None observed

#### Carcinogenic Potential

Propiconazole:

Increased incidence of liver tumors at extremely high doses (male mice)

#### Other Toxicity Information

Not Available

#### Toxicity of Other Components

#### n-Butanol

Prolonged exposure to N-Butanol may result in drying and cracking of the skin from a defatting action. There is evidence that long-term repeated exposure to vapor concentrations greater than 50 ppm may result in some loss of hearing. N-Butanol vapor can cause specific injury to the cornea. Irritation of the skin and respiratory tract may occur with brief exposures. Causes severe irritation to the eyes with lacrimation. Inhalation of n-Butanol may result in loss of consciousness, headache, dizziness, nausea, drowsiness and vomiting.

#### Target Organs

Active Ingredients

Propiconazole

: Liver

Inert Ingredients

n-Butanol

: Respiratory Tract, Inner Ear, Eyes and Skin

#### 12. ECOLOGICAL INFORMATION

#### Summary of Effects

Propiconazole:

Low toxicity to wildlife. Highly toxic to fish.

#### **Eco-Acute Toxicity**

Propiconazole:

Rainbow Trout 96-hour LC50 5.2 mg/L Bluegill Sunfish 96-hour LC50 >100 ppm Daphnia magna 48-hour LC50 3.2 mg/L Bobwhite Oral LD50 2,825 mg/kg Mallard Oral LD50 >2,510 mg/kg

Bobwhite 8-day Dietary LC50 >5,620 ppm Mallard 8-day Dietary LC50 >5,620 ppm

#### **Eco-Chronic Toxicity**

Propiconazole:

Fish (Fathead minnow) Early Life Stage MATC  $\,$  >0.43 and <0.97 mg/L

Invertebrate (Daphnia Magna) Life Cycle MATC >0.31 and <0.69 mg/L Mallard Reproduction NOEC 300 ppm

Bobwhite Reproduction NOEC 1,000 ppm

#### Environmental Fate

#### Propiconazole:

No data available for the formulation. The information presented here is for the active ingredient, propiconazole. A thorough review of environmental information is not possible in this document. For additional information call the toll free number listed in Section 16.

#### ENVIRONMENTAL PERSISTANCE/MOBILITY:

Stable in sterile water, in the dark at pH 5, 7 and 9. Degradation in the light varies from slow in water (t1/2 = 249 d @ pH 7) to variable in soil ( $t1/2 \sim 53$  d to stable). Degradation in soil, in the dark is moderate under aerobic ( $t1/2 \sim 43$  to 70 d) and aquatic ( $t1/2 \sim 15$ -113 d) conditions. Stable under anaerobic aquatic conditions ( $t1/2 \sim 15$ -113 d) Conditions. Stable under anaerobic aquatic conditions ( $t1/2 \sim 15$ ). Medium to low mobility in various soils (Koc 382 to 1134). Some bioaccumulation (BCF = 203X, whole fish).

Product Name:

BANNER GL

#### 13. DISPOSAL CONSIDERATION

#### Disposal

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

Characteristic Waste: Ignitable D001

Listed Waste:

Not listed.

#### 14. TRANSPORT INFORMATION

#### **DOT** Classification:

Flammable Liquid, n.o.s. (contains n-butanol), 3, UN1993, PGIII, LTD QTY

#### **B/L Freight Classification**

Fungicides, NOI, O/T poison

International Transportation

Not Applicable

#### 15. REGULATORY INFORMATION

#### SARA Title III Classification

Section 311/312:

Acute Health Hazard

Chronic Health Hazard

Fire Hazard

Section 313 chemical(s): Propiconazole (41.8%) (CAS No. 60207-90-1)

n-Butanol

(CAS No. 71-36-3)

#### Proposition 65

Not Applicable

#### CERCLA Reportable Quantity (RQ)

1,575 gallons (based on N-Butanol, CAS # 71-36-3 [RQ=5000] in the formulation)

#### RCRA Classification

Ignitable

#### TSCA Status

Exempt from TSCA, subject to FIFRA

#### 16. OTHER INFORMATION

NFPA Hazard Ratings			0	Least
Health:	2	· .	1	Slight
Flammability:	2		2	Moderate
	2		3	High
Reactivity:	U		4	Severe
			5	Not Known

Questions concerning the safe handling of the product should be referred to:

1-800-334-9481

Issued Date:

04/07/1992

Revised Date:

10/26/2001

Supersedes:

04/13/2000

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.

RSVP#: SCP-955-736A-00104J

Product Name:

**BANNER GL** 

## TruPower Selective Herbicide

Emergency Phone (CHEMTREC): (800) 424-9300 Information Phone: (800) 345-3330

Date Issued: 12/8/97 Supersedes: 12/8/97

Product Code: B323R MSDS Number: 323

#### 1. INFORMATION ON INGREDIENTS

Chemical Name 2-Methyl-4- Chloro- phenoxy- acetic Acid	<b><u>CAS</u></b> # 94- 74-6	Weight % 48.13%	Com- mon Name MCPA Acid	OSHA PEL N/A	AC: GIH TLV N/A
Mono- ethanol- amine Salt of 3,6-Dich- loro-2- Pyridine- carboxylic Acid	5775 4-85-5	5.18%	Clopy- ralid	N/A	N/A
3,6- Dichloro- o-anisic Acid	1918- 00-9	4.73%	Dicam- ba Acid	N/A	N/A
Water and Seques- terents	N/A	<u>41.96%</u>	Inert Ingre- dients	N/A	N/A
	Total	100.00%			

#### 2. HEALTH DATA

#### PRIMARY ROUTE OF ENTRY:

Dermal/Eye: Yes Oral: Yes Inhalation: No

SYMPTOMS OF OVEREXPOSURE: Muscle weakness, lethargy, loss of appetite, abdominal pains, headache, or shortness of breath.

#### **ACUTE HEALTH EFFECTS**

**Inhalation:** Avoid inhaling vapors or mist. May irritate the respiratory tract or cause dizziness. Single exposure to vapors is not likely to be hazardous.

Eyes: Direct and prolonged eye exposure to the concentrated product may cause corneal opacity, irreversible eye damage.

Skin: This product is considered a minimal skin irritant and is not a dermal sensitizer. Harmful if absorbed through the skin. Repeated or prolonged exposure may cause effects similar to those caused by ingestion. Ingestion: May cause muscle weakness, nausea, diarrhea, and abdominal pain. Fall in blood pressure or myotonia (prolonged muscular spasm) may occur under extreme exposure conditions. Can be fatal. TOXICOLOGICAL DATA

Acute Oral LD<sub>50</sub>: 1.4 - 2.0 g/kg (male rats); 1.46 g/kg (female rats)

Acute Dermal LD<sub>50</sub>: 2.5 g/kg (male rabbits); 3.1 g/kg (female rabbits)

Acute Inhalation LC<sub>50</sub>: no mortality at > 4.42 mg/l; max concentration (rabbits)

Eye Irritation: corrosive (rabbits)

Dermal Irritation: slight irritation at 72 hours (rabbits)
Dermal Sensitization: not a sensitizer (guinea pigs)
MEDICAL CONDITIONS POSSIBLY AGGRAVATED
BY EXPOSURE: Skin exposure may aggravate existing skin conditions. Exposure to mist may aggravate existing respiratory conditions.

CHRONIC HEALTH EFFECTS: Chronic overexposure to the active ingredients in this product may cause liver changes or a decrease in body weight. The EPA's Science Advisory Panel has given dicamba a class D classification (not classifiable as to human carcinogenicity). Animal tests with Dicamba have not demonstrated carcinogenic, teratogenic or reproductive effects with the exception of slightly reduced fetal body weights and post implantation losses reported at the Maximum Tolerated Dose level. Dicamba is not considered a mutagen. Clopyralid did not cause cancer in long-term animal studies. Clopyralid was a teratogen at doses

severely toxic to the mother, but not at doses still several times greater than those expected during normal exposures. The available evidence on MCPA indicates that it is not a carcinogen or mutagen. No conclusions can be drawn about its teratogenic risk.

## Agency Listing Carcinogen

NTP	IARC	OSHA
No	No	No

## 3. FIRST AID MEASURES EYE CONTACT: Hold eyelids open and flush entire

eye with a steady, gentle stream of water for 15 minutes. Get medical attention at once.

INHALATION: Remove victim to fresh air. Get medical attention if cough or respiratory symptoms develop.

INGESTION: Call a physician or Poison Control Center. Drink promptly a large quantity of milk, egg whites or gelatin solution, or, if these are not available, drink large quantities of water. Avoid alcohol. Do not induce vomiting or give anything by mouth to an unconscious person.

SKIN CONTACT: Wash affected area with soap and water. If irritation persists, get medical attention.

NOTE TO PHYSICIAN: Probable mucosal damage

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate gastric lavage. If large amounts of the product were ingested, the stomach should be emptied by gastric intubation.

#### 4. FIRE FIGHTING MEASURES

FLASH POINT (F): N/A

FLASH POINT METHOD USED: None- aqueous solution

**EXTINGUISHING MEDIA:** Use CO2 or dry chemical for small fires and foam, water fog, or water stream for large fires. Use water spray to cool closed containers. **COMBUSTION PRODUCTS:** May include, but are not limited to: hydrogen chloride, nitrogen oxides, and chlorinated pyridines.

SPECIAL FIRE FIGHTING PROCEDURES: May produce toxic and noxious furnes under extreme fire conditions. Use positive pressure self-contained breathing apparatus and acid resistant protective clothing. Any water used to extinguish the fire should be contained by diking to prevent contamination of the public water system.

**UNUSUAL FIRE & EXPLOSION HAZARDS:** Drums of product will burst from steam pressure under prolonged fire conditions.

See Section 13, REGULATORY INFORMATION, for NFPA ratings.

#### 5. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS SPILLED OR RELEASED: When cleaning large spills, wear the suggested safety equipment (see section 7). Surround with impervious material such as dirt to prevent run-off. Absorb product with an inert absorbent such as clay granules or wood shavings. Contain all affected material in a closed, labeled container for proper disposal. Treat contaminated area with detergent and water.

#### 6. HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Always use original container to store pesticides in a secured warehouse or storage building. Do not store near seeds, fertilizers, insecticides, or fungicides. Store at temperatures above 32 F. If allowed to freeze, remix before using. Freezing does not alter this product. Containers should be opened in well ventilated areas. Keep container tightly sealed when not in use. Do not stack cardboard cases more than two pallets high. Do not contaminate water, food, or feed by storage or disposal.

WORK HYGIENIC PRACTICE: Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

## 7. EXPOSURE CONTROL/PERSONAL PROTECTION

RESPIRATORY PROTECTION: Respiratory protection is not normally required. Use a NIOSH/MSHA approved respirator when directly exposed to mist. VENTILATION: Open ventilation. Reduce all mist with local exhaust.

PROTECTIVE GLOVES: Chemical-resistant gloves EYE PROTECTION: Wear splash goggles or face shield when handling.

OTHER PROTECTIVE EQUIPMENT: Long sleeved shirt, long pants, socks and shoes

#### 8. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: Dark brown liquid, mild amine odor

SOLUBILITY IN WATER: 100% in water BOILING POINT (F): >212

VAPOR PRESSURE (mm Hg @ 20 C): N/D SPECIFIC GRAVITY (H20 = 1): 1.148

pH: 7.5 - 8.5

FREEZING POINT (F): 32 POUNDS PER GALLON: 9.56

#### 9. STABILITY AND REACTIVITY

STABILITY: Stable

CONDITIONS TO AVOID: Avoid heat conditions INCOMPATIBILITY: Alkalies, strong acids or oxidizers HAZARDOUS BYPRODUCTS: None

HAZARDOUS POLYMERIZATION: Will Not Occur

#### 10. ECOLOGICAL INFORMATION

**ENVIRONMENTAL FATE**: MCPA, Dicamba, and Clopyralid each have a relatively short field half-life of (on average) 20-60 days, 7-28 days, and 40 days, respectively. Each of the active ingredients in this product is biodegraded by soil microbes and aquatic microorganisms.

#### 11. DISPOSAL CONSIDERATIONS

PRODUCT DISPOSAL: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixtures, or rinsate is a violation of Federal law. If this product cannot be disposed of by use according to the label, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA regional office.

CONTAINER DISPOSAL: Triple rinse (or equivalent) and offer for recycling, or puncture and dispose of in a sanitary landfill. Plastic containers are also disposable by incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

#### 12. TRANSPORTATION INFORMATION

DOT REGULATED CONTAINER SIZE: N/A
PROPER SHIPPING NAME: Compound, Weed
Killing, Liquid, Not DOT Regulated

#### 13. REGULATORY INFORMATION

SARA TITLE III; Section 311/312: An immediate and delayed health hazard. REPORTABLE QUANTITY (RQ):

1000 lbs of dicamba acid equivalent or approximately 2,702 gallons of this product. For releases greater than the RQ, contact the National Response Center at (800) 424-8802.

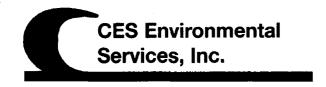
HMIS INFORMAT	TION	
HEALTH:	2	
FLAMMABILITY:	1	
REACTIVITY:	0 -	- 1
PROTECTIVE:	D	

SARA TITLE III; Section 313- This product contains the following substances subject to the reporting requirements of the Superfund Amendments and Reauthorization Act of 1986 and 40 GFR Part 372: Methoxone (MCPA) CAS #: 94-74-6

Dimethylamine dicamba CAS #: 2300-66-5

	NFPA INFORMA	TION	
	TOXICITY:	. 2	
1	FIRE:	1	
	REACTIVITY:	0	1
	SPECIAL:	N	

The information given herein is to the best of our knowledge true and accurate. No warranty, however, expressed or implied, is made.



4904 Griggs Road Houston, TX 77021 Tel. (713) 676-1460 Fax. (713) 676-1676

To: Gary Brauckman

From: Miles Root

Cc: Matt Bowman, Gary Peterson, Prabhaker,

Matt Moser, Joe Camp, Clint Hopkins

Date: 11/20/08

Lab Memo: 08-205

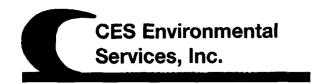
Subject: Vennie Wolf Evaluation 1108-54

Samples of oil and oily water from Vennie Wolf have been evaluated for process at CES. These samples are evaluation 1108-54 and represent material from numerous storage tanks that have been sitting abandoned for some time. Overall, CES should be able to recover and process most of the oils in these tanks and treat and discharge the waters. Some grease present may need to go to a landfill.

Chlor-d-tect testing was performed on the oil samples along with API gravities. Any water in samples was composited into a single sample and tested per our standard water treat. Three of the tanks, 20, 21 and 22 contain what appears to be asphalt type oil and this can be cut with our light ends.

I have summarized my testing and comments in the table below, along with the volumes as provided by Gary Brauckman.

···		Chlor-d-tect	Volume		
Tank	API Gravity	ppm	Gallons	Material	Comments
1+2 comp	26	500	3000	Black oil with sludge	Will need centrifuge
6	28	900	3600	Black oil with sludge	Will need centrifuge
9	38	300	600	Base oil with water layer	Base oil processing
12			unknown	Sludge with water	Sludge Box
14	26	300	unknown	Black oil	Will need centrifuge
18	24	1500	unknown	Oil and water	Phase separate out the water
20			30,000	Thick asphalt lube oil	Use cutter oil to process
21			20,000	Thick asphalt lube oil	Use cutter oil to process
22		*	3750	Thick asphalt lube oil	Use cutter oil to process
22A	1 1		3000	Oily water	Heat tank
36 ,			4000	Grease	Sludge Box
45A			4000	Oily water	Heat tank
49B	29	300	500	Possibly base oil	Base oil processing
49C	27	500	500	Possibly base oil	Base oil processing
49D			500	Oily water	Heat tank



4904 Griggs Road Houston, TX 77021 Tel. (713) 676-1460 Fax. (713) 676-1676

The water portion of the samples was composited, heated and acidified to remove oils. The standard water treat was performed and testing completed. The table below summarizes the analytical results.

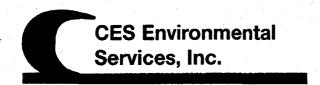
Treated Water Comp	oosite
Phenols, ppm	3
TOC, mg/L	0
Treatability	OK
Metals, ppm	
Ni	0.351
Zn	0.189
Cu	0.052
Cd	0.111

Friday 11-14-08 W/ GARY, Durin & Bruce Venice 713-862-9002-H Samples & List 281-352-8642 - 0 713-861-0024-F LARGE Black TANKS OFF Hurplan # 22 - TANKEN TRAILER # 22A - FIAT Bed-Roll off Box #7 - City of Han Sample - Red Flog Barrels From Trailer 16 Barrels in this Locustion avea Market w/wax pen # 36 - Ovange Tanker / Irailar Drums 17-26-@ Front of property of Hurley Near TANK aveross opening/Entrance # 3(A) TANK Across Entrance on Hurley Near Edell #1 -Brown truk also JAN Struples of oil #2-CALLING then 51 Scrop an Truka (2)

EPAHO048002486

page 1

D-28 - Blue Drum
#5-Red Flog-City of Houston 6 Drums - 0#32-37 Stuff from other tracks that was closed
#38-Blue Drum on ground
Lab packs for Stuff odds & ands i wardrouse
#48-Jank Neon Warehouse @ Reon (R)
#49 - Ded TANK Iroller A, B, C, D, A180 #13 Red Flog city of Housen
# 12 - Old Davk (Bertha) has bungs on it)
#13-TANK on Strano (#11 Red flag /city)
14-TANK
# 9 prouver de province + 9 on ground
at 45-0RD Gold Rid Jank Right & Hurden
# 45-Old Gulf bel Jank Right @ Hurberg New 3217 & 3203 page 2.
Sherley



4904 Griggs Road Houston, TX 77021 Tel. (713) 676-1460 Fax. (713) 676-1676

## Fax

CES Environmental Services 4904 Griggs Road Houston, TX 77021 Office: 713-676-1460

Fax: 713-676-1676

To: Steven Terry From: Gary Brauckman Company: Cell: 713-417-5737

Fax: 210-621-0622 Pages: 5

Date: 10-7-08

Notes:_	Into Fo	rroute	w)		
					· · ·
	Thanks				
	11-2				
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4904 Griggs Road Houston, TX 77021 Tel. (713) 676-1460 Fax. (713) 676-1676

To: Gary Brauckman

Cc: Keli Lofton, Gary Peterson

Date: 06/02/08

From: Miles Root

Lab Memo: 08-096

Subject: Weatherford-Elmendorf Evaluation 0508-75

A sample of water from Weatherford-Elmendorf, San Antonio, has been evaluated for potential processing at CES. This sample, evaluation 0508-75, is the rinse water from a manufacturing process of corrosion inhibitors. Overall, this source looks good for processing with low impurities and no problem issues.

This sample has only a trace of solids along with no phenols or oil. This source also has an acceptable TOC of 5885 mg/L and acceptable metals. The water treats easily and forms typical amounts of solids that readily flock out of solution upon treating. There are no problem issues and pricing may be low enough to cover our basic costs, with a surcharge for TOC values greater than 5000 mg/L.

The table below summarizes the analytical work done on this sample.

Weatherford-Elme	endorf
Evaluation 0508	-75
рН	9
Solids, vol%	Tr
Phenols, ppm	0
TOC, mg/L	5885
Oil, vol%	0
Metals	
Cd	0.043
Cr	0.192
Cu	0.321
Ni	0.878
Zn	0.202

## **Gary Brauckman**

From:

Gary Brauckman

Sent:

Tuesday, June 03, 2008 4:00 PM

To:

'McBryde, John M'

Subject:

Waste (Corrosion Inhibitor Wash Water)

#### Dear Mr. McBryde:

The sample that I picked up from you was tested and it was determined that the material can be received and treated by CES Environmental. The cost for managing the water in bulk will be set at the previous quoted rate of 8 cents per gallon with an allowable solids of 5%. Solid surcharge will be set at 2 cents per gallon per percent. TOC will be surcharged at a rate of 4 cents per gallon 5,000 ppm increments with an allowable 5,000 ppm. A maximum price will be set at 25 cents per gallon. Transportation is set at our standard rate of \$70.00 per hour plus fuel surcharge. As of today's date the FSC rate is 38.5%. If we handle this material in drums then you are looking at \$40.00 per drum.

Let me know when you might be ready with additional samples of other waste streams. I also wanted to know if you thought any more about having CES come out to triple rinse the U and P listed drums. If nothing else let's see about setting up profiles for your various streams so that when or if you are ready to ship then everything will be set to go. Please feel free to give me a call to discuss.

Thank You,

Gary Brauckman Cell: 713-417-5737

#### Gary Brauckman

From:

Gary Brauckman

Sent:

Wednesday, March 19, 2008 6:34 PM

To: Subject: McBryde, John M RE: pricing, comments

Just need a qt per stream on the road now feel free to call

From: McBryde, John M < John.McBryde@weatherford.com>

Sent: Wednesday, March 19, 2008 6:26 PM

To: Gary Brauckman <gbrauckman@cesenvironmental.com>

Subject: RE: pricing, comments

Do you want quarts for each?

From: Gary Brauckman [mailto:gbrauckman@cesenvironmental.com]

Sent: Wednesday, March 19, 2008 5:46 PM

To: McBryde, John M

Subject: RE: pricing, comments

Hello John:

I have been working on your waste streams and I have a few questions and comments to make before I draft up a formal quote:

Phosphonate Condensate Flammable: The profile indicates less than 24% alcohol and only hazardous due to characteristic of D001. This material falls under the alcohol exemption and is not classified as a hazardous waste. We can take the material into our facility as a class I non-hazardous waste for treatment and or deepwell injection at a disposal cost of not to exceed 30 cents per gallon. If you have higher levels of methanol then we will need a sample to evaluate for product recovery.

Benzyl Chloride Drums: I have worked up preliminary pricing for this, to triple rinse the drums with diesel. I am waiting on a reply from our fuel blending vendors to obtain pricing to dispose of the rinsate. I believe they will be able to take it as fuel due to the low concentration of benzyl chloride. Right now I would be around \$8,000 to clean and remove 100 drums at a time. I have pricing from Veolia to incinerate but I don't think we can compete but I will quote around \$150.00/drum but it's not firm until approved by Veolia.

U & P-Listed Debris: Once again I don't think I can compete since we would be going to Veolia and the price would be around \$325 per drum. I won't be able to give firm pricing until a profile is completed and approved by Veolia.

Process Rinse Water: This is the stream I set up for Clearwater many years ago and I remember it varied in color, solids, pH etc. I really need a sample to establish pricing on what you currently generate. Our base price for clear waste water with less than 2% solids, <1500 TOC is around 8 cents. There are surcharges for solids and TOC and a price set not to exceed 25 cents. It is also possible the material could have sufficient oil to fall under the used oil regulations and not be considered a waste, once again I need a sample to evaluate. Keep in mind that we use our own trucks and once they get to our facility for off loading they are off the clock. I can also set up a trip fee if desired.

I will prepare a formal quote once I get all my information for the drum rinsing etc. with scope of service and all. I just wanted you to take a look at our preliminary pricing and see if we are even in the ball park. I still would like for you to come to Houston and take a look at what we have and I feel you will be greatly impressed.

I do not know all the streams that you generate but with employee training to segregate debris, rinsing drums at point of generation, de-classifying waste material, you may actually become a CESQG. I would like to help with this process.

Feel free to give me a call to discuss.

Thank You,

Gary Brauckman Cell: 713-417-5737

**From:** McBryde, John M [mailto:John.McBryde@weatherford.com]

**Sent:** Tuesday, March 18, 2008 1:27 PM

To: Gary Brauckman Subject: RE: pricing

I am already working on the PPE segregation. I would need to see a drastic reduction in price to triple rinse and then dispose of the rinse.

From: Gary Brauckman [mailto:gbrauckman@cesenvironmental.com]

**Sent:** Tuesday, March 18, 2008 11:34 AM

**To:** McBryde, John M **Subject:** RE: pricing

Hello John:

I am working up pricing right now, I really can't compete on the incineration since Veolia is already managing these items and that is where I will have to go with it. I would like to propose bringing in a trailer with containment to triple rinse under supplied air and then hauling off the drums as either recyclable or class I and hauling off the rinsate in drums or totes as P-listed waste. Also including the contaminated PPE. I would also like to set up a system to color code drums for the collection of PPE. I am waiting on Veolia to give me a price and then I can see if the triple rinsing is feasible. As for your wash water, just let me know when you have a sample available and I will arrange to pick it up for pricing and treatment evaluation. My pricing will be based on a full load of drums; I hope to have an answer for you this afternoon.

Thank You,

Gary Brauckman Celi: 713-417-5737

From: McBryde, John M [mailto:John.McBryde@weatherford.com]

Sent: Monday, March 17, 2008 2:59 PM

**To:** Gary Brauckman **Subject:** pricing

Gary

Could you get me some pricing on the Benzyl Chloride drums and PPE? I need some feedback on these two as soon as you can get it to me. Thnx

John McBryde QHSSE Administrator



Weatherford Engineered Chemistry
San Antonio Branch
4420 South Flores Road Elmendorf, TX 78112
p. (210) 626-0828
fax. (210) 621-0622
Main (210) 621-2156

## Ashland Distribution Company WASTE PROFILE

7500 / 100 ans

SIC Code					ASH	28-
Form Code	В					
Source Code	Α	<u> </u>				SAP#
					_ Che	eck here if this is a recertification
· ·		G	ENERAL INFO			
Congretor Neme		Cloomyster International		Generator USEPA		
Generator Name Generator Addre		Clearwater International 4420 South Flores Rd.		Generator State	: ID#: .	33626
Generator Addre	<b>5</b> 33.	Elmendorf, TX 78112		Rilling Address:	ДСНІ	AND DISTRIBUTION COMPANY
Technical Conta	ct:	Scott Lysko / Mark Wanner		• •		Wood Drive
Phone:		210-621-2156 / 724-318-10		_		and, TX 75041
Fax:				•		
Ashland Sales	Rep:	Justin Edmondson		Billing Contact:	Marci	i Huffman
Phone:		972-271-6472		Phone:	972-2	271-6472
Fax:		972-271-3507		Fax:	972-2	271-3507
		PROP	ERTIES AND	COMPOSITION		
Process General	tina Wa	ste: <u>chemical manufacturin</u>				
		d Chloride Drums	·			
		ous waste(40CFR Part 261) ?	Yes ⊠	No 🗌	Waste	ewater 🔲 Non-wastewater 🖂
Identify ALL USE	EPA list	ed and characteristic waste co	ode numbers:	P028		
				State Waste Co	odes:	4456406H
Physical State @	⊉ 70 ∘F	: Solid ⊠ Liquid ⊡ Both [	☐ Single	Layer Multilayer	. 🗆	Free liquid range: 2 to 0 %
pH: Range	to	OR N/A⊠ Strong	a odor⊠ Des	cribe pungent		Color blue drums
		F □ 73-99°F □ 100-139°		9∘F □		∘F □ N/A □ Closed Cup ⊠
	III ~/3·	/F [] 75-99*F [] 100-139*	140-19	9.L □	<b>2200</b> °	F □ N/A □ Closed Cup □
Open Cup 🗌						
		TON: List ALL constituents p			ward a	
Constituents Plastic drum			nge/Units 100%	Constituents		Range/Units
		<del>90-</del>				
Benzyl Chlor	пае		<del>70</del>			
-						
TOTAL COMPOS	ITION M	UST EQUAL OR EXCEED 100%	ó			Analytical data attached
			HIPPING INFO			
Packaging: B	ulk Soli	d 🗌 💮 Bulk Liquid 🗌	Drum 🛛 T	ype/Size: 55 gallo	on poly	Other
Anticipated volu	ume: _	400 drums		_ Shipping Frequer	ncy: <u>r</u>	monthly
		SA	MPLING INFO	PRMATION		
Is a sample requ	ired?	YES □ NO ☒		N	MSDS:	attached 🖂
Date Sampled:			ampler's Name	e/Company:		
•	nt Supe	ervising Sampling:				
			AZARDOUS C	HARACTERISTICS		
Specific Gravity:	Da	nge: to O			ent 🗀	1
						] <5,000 OR □ >5,000

FRM000027 (rev 3/01) Page 1 of 2

TCLP
PA# NAME
D004
D005   Barium
D006   Cadmium
D007   Chromium   S5.0   D027   1,4-Dichlorobenzene   S7.5   D008   Lead   S5.0   D028   1,2-Dichloroethane   S0.5   D009   Mercury   S0.2   D029   1,1-Dichloroethylene   S0.7   D010   Selenium   Silver   S5.0   D031   Heptachlor   So.008   D011   Silver   S5.0   D031   Heptachlor   So.008   D012   Endrin   S0.02   D032   Hexachlorobenzene   S0.13   D013   Lindane   S0.4   D033   Hexachloro-1,3-butadiene   S0.5   D034   Hexachloroethane   S0.5   D014   Methoxychlor   S10.0   D034   Hexachloroethane   S0.0   S0.00   D015   Toxaphene   S0.5   D035   Methyl ethyl ketone   S0.0   S0.0   D016   Z,4-D   S10.0   D036   Nitrobenzene   S2.0   D017   Z,4,5-TP (Silvex)   S10.0   D037   Pentachlorophenol   S10.0   S10.0   D038   Pyridine   S5.0   D019   Carbon tetrachloride   S0.5   D038   Pyridine   S5.0   D019   Carbon tetrachloride   S0.5   D039   Tetrachloroethylene   S0.7   D020   Chlordane   S100.0   D041   Z,4,5-Trichlorophenol   S400.0   D022   Chloroform   S6.0   D042   Z,4,6-Trichlorophenol   S2.0   D023   O-Cresol   S200.0   D043   Vinyl chloride   S0.2   D022   Chloroform   S6.0   D042   Z,4,6-Trichlorophenol   S2.0   D023   O-Cresol   S200.0   D043   Vinyl chloride   S0.2   D022   D023   O-Cresol   S200.0   D043   Vinyl chloride   S0.2   D024   D025   D026   D026   D027   D027   D028   D028   D028   D029   D
D008
D009   Mercury
D010   Selenium
D011   Silver
D012   Endrin
D013
D014   Methoxychlor
D015   Toxaphene
D016
D017         2,4,5-TP (Silvex)         >1.0         D037         Pentachlorophenol         >100.0           D018         Benzene         >0.5         D038         Pyridine         >5.0           D019         Carbon tetrachloride         >0.5         D039         Tetrachloroethylene         >0.7           D020         Chlordane         >0.03         D040         Trichloroethylene         >0.5           D021         Chlorobenzene         >100.0         D041         2,4,5 -Trichlorophenol         >400.0           D022         Chloroform         >6.0         D042         2,4,6 -Trichlorophenol         >2.0           D023         o-Cresol         >200.0         D043         Vinyl chloride         >0.2    TRANSPORTATION INFORMATION  Is this a DOT Hazardous Material?  Express No  Proper Shipping Name:  Benzyl Chloride  Hazard Class:  6.1         I.D.#: UN1738         Packing Group: II
D018         Benzene         >0.5         D038         Pyridine         >5.0           D019         Carbon tetrachloride         >0.5         D039         Tetrachloroethylene         >0.7           D020         Chlordane         >0.03         D040         Trichloroethylene         >0.5           D021         Chlorobenzene         >100.0         D041         2,4,5 -Trichlorophenol         >400.0           D022         Chloroform         >6.0         D042         2,4,6 -Trichlorophenol         >2.0           D023         o-Cresol         >200.0         D043         Vinyl chloride         >0.2    **TRANSPORTATION INFORMATION  Is this a DOT Hazardous Material?  **Yes   No  **Proper Shipping Name: **Benzyl Chloride**  Hazard Class: **6.1         I.D.#: UN1738         Packing Group: II
D019   Carbon tetrachloride   >0.5   D039   Tetrachloroethylene   >0.7
D020   Chlordane
D021   Chlorobenzene
D022 Chloroform
D023 o-Cresol
TRANSPORTATION INFORMATION  Is this a DOT Hazardous Material?   Yes  No  Proper Shipping Name:  Benzyl Chloride  Hazard Class: 6.1  I.D.#: UN1738  Packing Group: II
Is this a DOT Hazardous Material?
Proper Shipping Name:         Benzyl Chloride           Hazard Class:         6.1           I.D.#:         UN1738           Packing Group:         II
Hazard Class: 6.1 I.D.#: UN1738 Packing Group: II
CERCLA Reportable Quantity RQ Units (lb/kg): 100/45.4 ERG# 156
SPECIAL HANDLING: This is a Corporate Account (Weatherford)
Additional Page(s) Attached
OFNED ATODIO OFDIFICATION
GENERATOR'S CERTIFICATION I hereby certify that all information submitted in this and all attached documents contains true and accurate descriptions of this
waste. Any sample submitted is representative as defined in 40 CFR 261 - Appendix I or by using an equivalent method. All
relevant information regarding known or suspected hazards in the possession of the generator has been disclosed. I authorize
disposer to obtain a sample from any waste shipment for purposes of recertification. If the waste stream or process generating the waste changes, I will notify Ashland Distribution Co. prior to shipment of the waste.
· · · · · · · · · · · · · · · · · · ·
Signature Printed (or typed) name and title Date

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250/32500

## Ashland Distribution Company WASTE PROFILE

SIC Code			<b>ASH</b>	28-33803		
Form Code B				902-M02		
Source Code A	<del></del>		-	Ter		
		[	Chec	ck here if this is a recertification		
	GENERAL INFO	ORMATION				
		Generator USEPA	_	<del></del>		
Generator Name:	Clearwater International	. Generator State	e ID#: _	33626		
Generator Address:	4420 South Flores Rd.					
	Elmendorf, TX 78112	Billing Address:	ASHLAND DISTRIBUTION COMPANY			
Technical Contact:	Chris Bolen / Mark Wanner	······································		Nood Drive		
Phone:	210-621-2156 / 724-318-1014	•	<u>Garlar</u>	nd, TX 75041		
Fax:	210 621 0622					
Ashland Sales Rep:	Justin Edmondson	Billing Contact:		Huffman		
Phone:	972-271-6472	Phone:		71-6472		
Fax:	972-271-3507	Fax:	972-2	71-3507		
	PROPERTIES AND	COMPOSITION	· · · · · ·			
Process Generating Was	ste: PPE, absorbents and towels contam	ninated with miscellan	eous ch	nemicals.		
Waste Name: <u>Used F</u>	PE					
Is this a USEPA hazardo	ous waste(40CFR Part 261) ? Yes ⊠	No 🗌	Waste	water 🗌 Non-wastewater 🛛		
Identify ALL USEPA liste	ed and characteristic waste code numbers:	<u>U219,U123,U00</u>	8,U025,	U041,U147,P028		
U122,U052,U154,U031,U	U140,U220,U002,U161,U004,P022	State Waste C	odes: _	4473319H		
Physical State @ 70 °F:	Solid ⊠ Liquid ☐ Both ☐ Single	e Layer 🛛 Multilaye	r 🔲 🛚 I	Free liquid range: 0 to 0 %		
pH: Range to	OR N/A⊠ Strong odor⊡ De	scribe		Color various		
· — —		99∘F ⊠	>2000	F □ N/A ☒ Closed Cup □		
<u></u>	1	99-1 2	2200	I MAM Closed cup		
Open Cup						
	ION: List ALL constituents present in any		rward av			
Constituents	Range/Units 100%	Constituents		Range/Units		
Used PPE, towels, a	<del></del>					
contaminated with m	ilscellaneous					
chemicals						
TOTAL COMPOSITION MU	JST EQUAL OR EXCEED 100%			Analytical data attached		
······································	SHIPPING INFO	ORMATION				
Packaging: Bulk Solid	d 🗌 💮 Bulk Liquid 🔲 🗡 Drum 🖂 🧦	Type/Size: _55gal	drum	Other		
Anticipated volume: _	12 drums	Shipping Freque	ncy: _p	er year		
	SAMPLING INF	ORMATION				
Is a sample required?	YES □ NO 🏻		MSDS a	attached 🔲		
Date Sampled:	Sampler's Nam	ne/Company:		<del>-</del>		
Generator's Agent Super						
	OTHER HAZARDOUS O	CHARACTERISTICS				
Specific Growitz	nge: to OR Actual _					
	nge to OR Actual _ AP Waste?: □ YES ☒ NO			<5,000 OR [] >5,000		

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GENER	GENERATOR'S WASTE MATERIAL PROFILE SHEET (CONTINUED)  ASH 28-33803								
CONTA	MINANTS: [	TCLP		TOTAL [	NONE IN	Profile # THIS SECTION PRESENT			
REGULATORY				ĽΥ			REGULATORY		
EPA#	<u>NAME</u>	<u>L</u>	<u>EVEL</u>	<b>ACTUAL</b>	EPA#	<u>NAME</u>	<u>LEVEL</u>	<b>ACTUAL</b>	
D004	Arsenic		>5.0		D024	m-Cresol	>200.0		
D005	Barium		>100.0		D025	p-Cresol	<b>&gt;200.0</b>		
D006	Cadmium		>1.0		D026	Cresol (total)	>200.0		
D007	Chromium		>5.0		D027	1,4-Dichlorobenzene	□ >7.5		
D008	Lead		>5.0		D028	1,2-Dichloroethane			
D009	Mercury		>0.2	<del></del>	D029	1,1-Dichloroethylene	☐ >0.7		
D010	Selenium		>1.0		D030	2,4-Dinitrotoluene	□ >.13		
D011	Silver		>5.0		D031	Heptachlor	>0.008		
D012	Endrin		>0.02		D032	Hexachlorobenzene	☐ >0.13		
D013	Lindane		>0.4		D033	Hexachloro-1,3-butadiene			
D014	Methoxychlor		>10.0		D034	Hexachloroethane			
D015	Toxaphene		>0.5		D035	Methyl ethyl ketone			
D016	2,4-D		>10.0	<del></del>	D036	Nitrobenzene	>2.0	<del></del>	
D017	2,4,5-TP (Silvex)		>1.0		D037	Pentachlorophenol		<del></del>	
D018	Benzene		>0.5		D038	Pyridine			
D019	Carbon tetrachlor	ide 🗌	>0.5		D039	Tetrachloroethylene	□ >0.7		
D020	Chlordane		>0.03		D040	Trichloroethylene	☐ >0.5		
D021	Chlorobenzene		>100.0		D041	2,4,5 -Trichlorophenol	☐ >400.0		
D022	Chloroform		>6.0	<del></del> _	D042	2,4,6 -Trichlorophenol	>2.0	<del></del>	
D023	o-Cresol		>200.0		D043	Vinyl chloride	>0.2	<del></del>	
			T	RANSPORT	ATION INFO	RMATION	· · · · · · · · · · · · · · · · · · ·		
Is this a	DOT Hazardous M	aterial?	$\boxtimes$	Yes 🔲	No				
Proper S	Shipping Name:	<u>Hazaro</u>	dous wa	ste solid, n.o.	s. (chemically	/ contaminated solids)		<del></del>	
Hazard	Class: 9			I.D.#	: <u>NA3077</u>	Packing G	Group: III		
	al Description: _								
	A Reportable Quant	-	<del></del>			b/kg):	ERG# <u>171</u>		
SPECIA	L HANDLING: <u>T</u>	<u>his is a Cor</u>	<u>oorate A</u>	ccount (Weat	<u>herford)</u>				
						Additior	nal Page(s) Attac	hed 📙	
waste. <i>i</i> relevant dispose	Any sample submitt information regardi	ed is repres ng known o from any w	entative r suspec aste shi	as defined in cted hazards i pment for pur	tached docur 40 CFR 261 n the posses poses of rece	ments contains true and acc - Appendix I or by using an sion of the generator has be ertification. If the waste stre	equivalent meth en disclosed. I	od. All authorize	
Signatui	re			Printed (	or typed) nar	ne and title	Date		

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Trailer W aprenter X12 X70 = 89 Techs & X24 X28 67 Supplied Air 1 x 350 350 ME 3 × 25 M'ese / 3006al X 5 1500 co 6 × 100 100 × 20 1/cgpeger ( 600 co 2000 co Muns 6 x 35-00 2/000 # £500 co continu) space Diskops 6700

CES Environmental Services Inc. 4904 Griggs Road Houston, TX 77021

Phone:

713-676-1460

Fax:

713-676-1676

February 15, 2005

Weatherford International Ltd. 4420 South Flores Road Elmendorf, TX 78112

Attn: Scott Lysko

Re: Management and Disposal of Plant Wash Down Water

Dear Mr. Lysko:

CES Environmental Services, Inc., appreciates the opportunity to present to you our proposal for the management and disposal of your plant wash down water. Please find below our proposed scope of service and associated pricing for your consideration.

## **Scope of Service**

- CES will prepare the waste profile document into the existing disposal facility.
- CES will provide for the management and disposal of the waste material.
- CES will collect samples as required by the disposal facility.
- CES will provide for the transportation of the material in 130 bbl. Vacuum trailers.
- CES will provide the manifest, placards and associated shipping documents.
- CES will arrange for the scheduling of in-bound loads.
- CES on most occasions will be able to respond to a pick-up request with in 24 to 48 hours.
- CES will contact the customer on a routine basis and make periodic trips to the Weatherford facility to review processes and make recommendations.

Weatherford International Ltd. February 15, 2005 Page 2 of 2

#### **Pricing**

• Transportation and disposal utilizing existing disposal facility.

• Transportation and disposal utilizing alternate facility

\*(Non-Hazardous Deep Well Injection)

\*Note: Weatherford International has existing disposal history at the non-hazardous deep well facility.

\$ .40/gallon 38 \$ .38/gallon 30 36

#### Conditions/Assumptions

- Pricing for non-conforming waste will be determined upon review.
- The above pricing includes transportation and disposal costs.

It is my sincere hope that you find our proposed scope of service and associated pricing appealing and will consider utilizing the services of CES Environmental Service Inc. In the event you would like to remain with your current contractor, please consider CES as a back up for your required service. If you have any questions or comments or would like to begin service, please feel free to contact me at 713-417-5737.

Sincerely,

Gary Brauckman Account Manager



## **WASTE CHARACTERIZATION WORKSHEET**

WCW# \_\_\_\_EL92677

		С	ustomer Refe	rence #	
GENERATOR INFORMATION	BIL	LEINGEINEOR	MATION		
Name Clearwater International LLC Address 4420 S. Flores Road		PSC Company		Same as Generato	or x
	Sale	s Representative			
Building Name	Nan	•			
City Elmendorf	Add	ress		<del></del>	
State TX ZIP 78112		<del></del>		<del></del>	· · · · · · · · · · · · · · · · · · ·
Contact Terri Harrison	Mail	Stop	*···········		
Title QHSE Director	City	•			· · · · · · · · · · · · · · · · · · ·
Phone 210-621-2156 FAX 210-621-06		e	ZiP		
Mobile 210-669-1985		tact		· · · · · · · · · · · · · · · · · · ·	·····
E-Mail terri.harrison@weatherford.com	Talle	•		<del>"</del>	
EPA ID# TXD980809842	Pho	ne		Fax	
State ID # 33626	Mot	ile			
SIC Code 2899 Benzene NESHAP? Yes	No X E-M	ai			
NAIC Code					
MANIFEST RETURN INFORMATION	1MI	ROSERTOS	REGORD/(Int	mational Shipm	en(Only)
Name Clearwater International LLC	Nan	•			
Attention To: QHSE Department		ress			
Address 4420 S. Flores Road	City			·····	·····
Address 4420 G. Flores Road		e ID#	ZIP	· · · · · · · · · · · · · · · · · · ·	
City Elmendorf	Pho		Z:F	Fax	
State TX ZIP 78112		ND#		rax	
State 17 Zir 70112	ſ	TEID#	<del></del>	<del>-, , , , , , , , , , , , , , , , , , , </del>	
	1017	TL ID T	· · · · · · · · · · · · · · · · · · ·	·	
WASTEINFORMATION Form Code	w219			······································	
Waste Name / Comman Name Phosphonate Condensa		•••			
Generating Process Nuetralized 2807 CONDENSATION		ITON PROC	ESS	•	
				· · · · · · · · · · · · · · · · · · ·	·····
Treatment / Disposal Restrictions None		······································		<del>7</del>	
	ISDS Attached	Yes No	Х	Sample Yes	No X
Annual Generation Quantity	lbs	x gais	drums	tons	other
Shipping Frequency Daily Weekly		Quarterly	******		
Shipping Container Type X Bulk Liquid	Bulk Solid		r (size/type)	TANK	
SPECIAL HANDLING INFORMATION			(0	***	
		<del></del>		<u> </u>	
PHYSICAL CHARACTERISTICS					
Physical state @ 70 degrees F Gas X Liquid	Sludge	Solid	Debris	Monolithic	Lab Pack
Layer X Single Phase Bi-layer	red Mul	i-layered - descri	be	<del></del>	
Free Liquid None X Yes L	iquid Range	%	100 % Soli	d Range	% %
Odor None X Mild	Strong-de	scribe			
Specific Gravity <0.8 X 0.8 - 1.0 1	.0 - 1.2 >1.2	Act	ual		
Flash Point <73 F x 73 - 100 F	101 - 140	F 140	- 200 F	>200 F Actual	
Flash test Method MSDS X Generator Kr		Open Cup	Closed C	— >up None	
pH <=2 x 2.1 - 5.9	6.0 - 8.0		- 12.4		
Color light to tax	brown		بنسبيب		
Shock Sensitive Yes No X	· · · · · · · · · · · · · · · · · · ·		•		
Fuel Characteristics btu Haloge	ns	% Water	%	Heated	temp

CHEMICAL	CHEMICAL COMPOSITION Generator									
Meta!	Code	Non-Reg (TCLP)	TCLP	Total	Analysis	<u>Knowledge</u>				
Arsenic	(D004)	X<5 ppm	ppm	ppn	n	<u> </u>				
Barium	(D005)	X <100ppm	ppm	ррп	n <u></u>	X				
Cadmium	(D006)	X_<1ppm	ppm	ppn	n	<u> X</u>				
Chromium	(D007)	X <5ppm	ppin			X				
Mercury	(D009)	X <0.2ppm	ppm			<del>-</del> X				
Lead	(D008)	X <5ppm	ppm			X				
Selenium	(D010)	X <1ppm	ppm			<del></del>				
Silver	(D011)	X <5ppm	ppm	· · · · · · · · · · · · · · · · · · ·		X				
Thallium	• ,	· ·		ppn		$\overline{\mathbf{x}}$				
Sulfur				ppn		<u> </u>				
Copper				ppn		×				
Nickel				ррп		$\frac{\hat{\mathbf{x}}}{\mathbf{x}}$				
Zinc				ppn		<del></del>				
lenio.		•	Generator			Generator				
Toxics	None	Actual Analys		Toxics Nor	ne <u>Actual</u>	Analysis Knowledge				
PCBs					io Morbai					
Dioxins	X X X X	ppm	X   X   X   X   X   X   X   X   X   X	Quinones X Ammonia X Phosphorous X	pp					
Herbicides	<del>-</del>	ppm	- <del>-</del>	Phoenhause V	pp	<u> </u>				
	<del>-</del>	ppm			pp	···				
HOCs	<del>-</del>	ppm	- <del>-</del> -	Cyanides:						
Arometic Amines	<del>-</del>	ppm	- <del>-</del>	reactive X amenable X total X	pp					
Pesticides	X	ppm		amenable X	pp	m				
Fungicides	X	ppm	- <del>-                                  </del>		. pp	m				
Urea/Thiourea	X	ppm	- <del>X</del>	Sulfides:						
Phenois	X	ppm	- <del>X</del>	reactive X X	<u> </u>	m X				
TOCs	X	ppm	_ <u>X</u> _	totai X	pp	m <u>X</u>				
VOCs		trace ppm	_ <u>X</u>							
Chemical C	-									
Cas #	<u>Ch</u>	aracteristic Organics	Chemica	l Name	Minimu					
7732-18-5	<del> </del>		WATER		6					
7647-14-5			DIUM CHLORIDE							
67-56-1			METHANOL	···	1					
				**************************************		%				
<del></del>		·	······································		<del></del>	<u></u> %				
						%				
		<u>- 4</u>				<u></u> %				
	-									
***************************************		INFORMATION								
DOT Hazardou		Yes <u>X</u> No	Marine Poliutan			n Hazard YesNo _x				
DOT Shipping I	Name		Flammar	ole Liquid, N.O.S.	(Methano!)					
Hazard Class		3	_	ERG#		Without the state of the state				
UN/NA#		UN1993	Paci	kaging Group						
Reportable Qua				<del>- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1</del>	•					
REGULATO	IRY INFO	ORMATION								
USEPA regulate				Radioactive Waste?		YesNo _X				
State regulated	hazardous	waste? Yes		Explosive Waste?		Yes No X				
Subject to cates	gorical disci	rarge standards? Yes		Does this material co	ontain friable asbestos					
TSCA regulated	d PCBs ?	Yes	No X	Does this material co	ontain non-friable asbe					
CERCLA cleans	up action w	aste? Yes	NoX_	Waste subject to Sub	opart CC regulations?					
Dioxin bearing	waste per 4	0 CFR 261.31 Yes	No X	infectious or medical	waste?	Yes No X				
State Waste Co	ode			4562219H						
EPA Waste Co	des(s)			D001						
Additional Infon	mation									
LANDBANI	NFORMA	TION Waste su	bject to Land Disposal r	estriction? Yes	3 <u>X</u> No					
Waste is ?		ste water X	Non-wast	ewater	<del></del>					
Does this waste	e meet the o	lefinition of RCRA hazardous	debris ? Yes	No X	• 1					
		otification attached ?	Yes No X							
<b>AUTHORIZ</b>		<b>1</b>	- 0	/ . //	_	1				
WAS COLORED TO SERVICE		ock .	. /	enn Som	eles.	02-25-2008				
	•		<i>//</i>	Authorized :	Signature	Date				
				/ //						



# WASTE CHARACTERIZATION WORKSHEET Buse 84 max 254

Buse 84 MW 25¢ WCW#\_\_\_\_\_

	Customer Reference #							
GENERATOR INFORMATION	BILLING INFORMATION							
And the state of t								
Name Clearwater International LLC	PSC Company Same as Generator x							
Address 4420 S. Flores Road								
	Sales Representative							
Building Name	Name							
City Elmendorf	Address							
StateTXZIP78112								
Contact Terri Harrison	Mail Stop							
Title QHSE Director	City							
Phone <u>210-621-2156</u> FAX <u>210-621-0622</u>	State ZIP							
Mobile <u>210-669-1985</u>	Contact							
E-Mail <u>terri.harrison@weatherford.com</u>	Title							
EPA ID#TXD980809842	Phone Fax							
State ID #	Mobile							
SIC Code 2899 Benzene NESHAP? Yes No X	E-Mail							
NAIC Code								
MANIFEST RETURN INFORMATION	IMPORTER OF RECORD (International Shipment Only)							
Name Clearwater International LLC	Name							
Attention To: QHSE Department	Address							
Address 4420 S. Flores Road	City							
	State ID #ZIP							
City Elmendorf	Phone Fax							
State TX ZIP 78112	EPA ID#							
<u> </u>	STATE ID#							
WASTE INFORMATION Form Code								
Marchine Constitution and American Constitution and Const								
——————————————————————————————————————								
Generating Process Final reactor/process water rinse solutions	- Liver-							
Treatment / Disposal Restrictions None								
***************************************	d Yes No Sample Yes No							
Analysis Attached Yes No MSDS Attache Annual Generation Quantity varies / 9900 est lbs	· · · · · · · · · · · · · · · · · · ·							
	nthly X gals drums tons other  Yearly One time							
Shipping Frequency Daily Weekly _X More Shipping Container Type X Bulk Liquid Bulk Soli								
SPECIAL HANDLING INFORMATION	Container (sizertype)							
SPECIAL HANDLING INFORMATION								
PHYSICAL CHARACTERISTICS								
Physical state @ 70 degrees F Gas X Liquid Sludge	Solid Debris Monolithic Lab Pack							
Layer Single Phase Bi-layered X								
Free Liquid None X Yes Liquid Range								
Odor None X Mild Stre								
Specific Gravity <0.8 <b>X</b> 0.8 - 1.0 1.0 - 1.2								
Flash Point <73 F 73 - 100 F 101	1 - 140 F <u>x</u> 140 - 200 F>200 F Actual >150							
	Open Cup Closed Cup None							
	- 8.0 8.1 - 12.4 >=12.5 Actual							
Color light to tan brown								
Shock Sensitive Yes No X								
Fuel Characteristics btu Halogens	% Water % Heated temp							
CHEMICAL COMPOSITION:	Generator							

<u>Metal</u>	Code	Non-Reg		<u>TCLP</u>	Т	otal	Analysis		<u>Knowledge</u>
Arsenic	(D004)	<b>N/A</b> <5 ppm	า	pr	om	ppm	<u>N/A</u>		X
Barium	(D005)	N/A <100pp		pr	om	ppm	N/A		<u>_X</u> _
Cadmium	(D006)	<b>N/A</b> <1ppm		pr	om	ppm	<u>N/A</u>		<u>_X</u>
Chromium	(D007)	N/A <5ppm		pr	om	ppm	N/A		<u>X</u>
Mercury	(D009)	<b>N/A</b> <0.2pp	m	pr	om	ppm	N/A		X
Lead	(D008)	N/A <5ppm		pr	om	ppm	N/A		<u>x</u>
Selenium	(D010)	<b>N/A</b> <1ppm		pr	om	ppm	N/A		<u>x</u>
Silver	(D011)	N/A <5ppm		pr	om	ppm	N/A		<u>x</u>
Thallium						ppm	N/A		<u>x</u>
Sulfur						ppm	N/A		<u>x</u>
Copper					<del></del>	ppm	N/A		<u>x</u>
Nickel						ppm	N/A		<u>x</u>
Zinc						ppm	N/A		<u>x</u>
•				Generator			<del></del>		Generate
Toxics	<u>None</u>	<u>Actual</u>	<u>Analysis</u>	<b>Knowledg</b>	e Toxics	<u>None</u>	<u>Actual</u>	<u>Analysis</u>	
PCBs	X	ppm		x_	Quinones	x	ppm	1	x
Dioxins	<u></u>	ppm			Ammonia	x	ppm		x
Herbicides	x	ppm		X	Phosphorous	x	ppm		x
HOCs	<u>_x</u>	ppm		x	Cyanides:				,
Aromatic Amines		ppm		x	reactive	X	ppm	n	x
Pesticides	×	ppm		x	amenable	<u>x</u>	ppm		x
Fungicides	<u></u>	ppm		<u>x</u>	total	<u></u>	ppm		x
Urea/Thiourea	×	ppm		×	Sulfides:				
Phenols	x	ppm		<u>x</u>	reactive	x_	ppm	ı	x
TOCs	×	ppm		<u> </u>	total	<u></u>	ppm		x
VOCs		trace ppm		×					
Chemical C	ompositi	on .							
<u> Cas #</u>	Cha	aracteristic Organ	<u>nics</u>	<u>Chemi</u>	cal Name		<u>Minimur</u>	<u>n</u>	<u>Maximum</u>
7732-18-5					Water		90	%	100
68442-97-7	<u> </u>			lr	nadazoline		0	<u> </u>	1
68909-18 -	2			Quater	nary Compo	und	0	<u></u> %	1
61790-12-3	3				Tall Oil		0	%	1
67-56-1 Methanol 0						0	<u> </u>	3	
				Soli	ds/soil/debri:	S	0%	Ď	2%
TRANSPOR	RTATION	INFORMATION							
DOT Hazardou	ıs material	YesN	lo <u>x</u>	Marine Polluta		NoX	Inhalation	Hazard	YesNo
<b>DOT Shipping</b>	Name				DOT non- r				
Hazard Class		N/A			ERG#		N/A	_	
UN/NA #		N/A		Pa	ackaging Group		N/A		
Reportable Qu	STORY OF STREET, BUSINESS CONSIDER THE CONTRACT OF STREET, THE CONTRACT OF STR	ibs RMATION		N/A					
USEPA regula	and the street the street at the street	Serting - 1. All Andrew Cont. (All Andrews Cont.)	Yes	No X_	Radioactive \	Naste ?			YesNo
State regulated			Yes	No X	Explosive Wa	aste?			YesNo
Subject to cate	gorical disch	arge standards?	Yes	No X	Does this ma	terial contain	friable asbestos ?	,	Yes No
TSCA regulate	d PCBs ?		Yes	No X	Does this ma	iterial contain	non-friable asbest	tos?	YesNo
CERCLA clear	nup action wa	aste ?	Yes	No	Waste subject	ct to Subpart	CC regulations?		Yes No
Dioxin bearing	waste per 40	CFR 261.31	Yes		Infectious or	medical wast	e ?		Yes No
State Waste C				<del></del>	45592	191			
EPA Waste Co	odes(s)							<del></del>	
Additional Info	• •								
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#### **Gary Brauckman**

From:

McBryde, John M [John.McBryde@weatherford.com]

Sent:

Wednesday, March 19, 2008 6:26 PM

To:

Gary Brauckman

Subject:

RE: pricing, comments

Do you want quarts for each?

From: Gary Brauckman [mailto:gbrauckman@cesenvironmental.com]

Sent: Wednesday, March 19, 2008 5:46 PM

To: McBryde, John M

Subject: RE: pricing, comments

Hello John:

I have been working on your waste streams and I have a few questions and comments to make before I draft up a formal quote:

Phosphonate Condensate Flammable: The profile indicates less than 24% alcohol and only hazardous due to characteristic of D001. This material falls under the alcohol exemption and is not classified as a hazardous waste. We can take the material into our facility as a class I non-hazardous waste for treatment and or deepwell injection at a disposal cost of not to exceed 30 cents per gallon. If you have higher levels of methanol then we will need a sample to evaluate for product recovery.

Benzyl Chloride Drums: I have worked up preliminary pricing for this, to triple rinse the drums with diesel. I am waiting on a reply from our fuel blending vendors to obtain pricing to dispose of the rinsate. I believe they will be able to take it as fuel due to the low concentration of benzyl chloride. Right now I would be around \$8,000 to clean and remove 100 drums at a time. I have pricing from Veolia to incinerate but I don't think we can compete but I will quote around \$150.00/drum but it's not firm until approved by Veolia.

U & P-Listed Debris: Once again I don't think I can compete since we would be going to Veolia and the price would be around \$325 per drum. I won't be able to give firm pricing until a profile is completed and approved by Veolia.

Process Rinse Water: This is the stream I set up for Clearwater many years ago and I remember it varied in color, solids, pH etc. I really need a sample to establish pricing on what you currently generate. Our base price for clear waste water with less than 2% solids, <1500 TOC is around 8 cents. There are surcharges for solids and TOC and a price set not to exceed 25 cents. It is also possible the material could have sufficient oil to fall under the used oil regulations and not be considered a waste, once again I need a sample to evaluate. Keep in mind that we use our own trucks and once they get to our facility for off loading they are off the clock. I can also set up a trip fee if desired.

I will prepare a formal quote once I get all my information for the drum rinsing etc. with scope of service and all. I just wanted you to take a look at our preliminary pricing and see if we are even in the ball park. I still would like for you to come to Houston and take a look at what we have and I feel you will be greatly impressed.

I do not know all the streams that you generate but with employee training to segregate debris, rinsing drums at point of generation, de-classifying waste material, you may actually become a CESQG. I would like to help with this process.

Feel free to give me a call to discuss.

Thank You.

Gary Brauckman Cell: 713-417-5737

From: McBryde, John M [mailto:John.McBryde@weatherford.com]

Sent: Tuesday, March 18, 2008 1:27 PM

**To:** Gary Brauckman **Subject:** RE: pricing

I am already working on the PPE segregation. I would need to see a drastic reduction in price to triple rinse and then dispose of the rinse.

From: Gary Brauckman [mailto:gbrauckman@cesenvironmental.com]

Sent: Tuesday, March 18, 2008 11:34 AM

To: McBryde, John M Subject: RE: pricing

Hello John:

I am working up pricing right now, I really can't compete on the incineration since Veolia is already managing these items and that is where I will have to go with it. I would like to propose bringing in a trailer with containment to triple rinse under supplied air and then hauling off the drums as either recyclable or class I and hauling off the rinsate in drums or totes as P-listed waste. Also including the contaminated PPE. I would also like to set up a system to color code drums for the collection of PPE. I am waiting on Veolia to give me a price and then I can see if the triple rinsing is feasible. As for your wash water, just let me know when you have a sample available and I will arrange to pick it up for pricing and treatment evaluation. My pricing will be based on a full load of drums; I hope to have an answer for you this afternoon.

Thank You,

Gary Brauckman Cell: 713-417-5737

From: McBryde, John M [mailto:John.McBryde@weatherford.com]

Sent: Monday, March 17, 2008 2:59 PM

**To:** Gary Brauckman **Subject:** pricing

Gary

Could you get me some pricing on the Benzyl Chloride drums and PPE? I need some feedback on these two as soon as you can get it to me. Thnx

John McBryde QHSSE Administrator



### Weatherford'

Weatherford Engineered Chemistry San Antonio Branch 4420 South Flores Road Elmendorf, TX 78112 p. (210) 626-0828 fax. (210) 621-0622 Main (210) 621-2156 MAIN

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J-5 BOTTOM DESK DRAWER

Art Garcia
Southern Container

713-466-5661-Phone.

713-466-4223-Fax

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Tak weter Based

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					Per (The signature here acknowledges only the amount prepaid.) Charges Advanced:
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Permanent post-office address of shipper.		A Shipper, Per		g.		nust detach and retain Order and must sign Bill of Lading.	
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# **CES Environmental Services Training Curriculum**

### SECTION I OSHA TRAINING CURRICULUM

## **CES Environmental Services Safety Training Curriculum**

## Table of Contents All Courses are Available in English and Spanish

	Course Description	<b>OSHA REGS</b>
Courses	(Section I)	(Section II)
Basic CPR First Aid	11	28
Bloodborne Pathogens (1910.1030)	2	50,51
<b>Confined Space Entry (1910.146)</b>		
Fire Safety (1910.157)		
Forklift Training (1910.178)		
Hazardous Communications (1910.1200).		
Hazwoper Refresher Course (1910.120)	7	21
Hazwoper 8 Hour Course (1910.120 q 6 i		
Hazwoper 24 Hour Course (1910.120 q 6		
Hazwoper 40 Hour Course (1910.120 all)		
Hearing Conservation (1910.95)		
Lock-Out-Tag-Out (1910.147)		
Personal Protective Equipment (1910.132		
Respiratory Protection (1910.134)		
Temperature Stress		
Section 3 Competitive Advantages Section 4 Sample Certificate Section 5 Pricing		

#### Notes:

- -Respiratory fit testing, pulmonary function test, and audiometric testing are available upon request (10 person minimum).
- -Other courses may be available upon request.
- -Breakfast and lunch are provided for students in the Hazwoper 24 and 40 hour classes.
- -All training can be provided on weekends and nights.

### **Basic First Aid & CPR**

This course is designed to train your personnel how to save lives in case of incident. This course provides a nationally recognized CPR and first aid rating. This course is covered as part of the 40 hr Hazwoper course or as an individual course.

#### Who Should Comply

Companies should have at least 1 qualified person on site during working hours. This course is recommended to all operational and office personnel and can be used outside of work.

NOTE: This training is good for 2 years before re-certification is required.

#### What is Covered

- -Basic First Aid.
- -How to perform CPR
- -How to maintain life support until more qualified persons arrive.
- -Role playing of various life threatening situations.
- -All courses are available in English and Spanish

#### Course Length

8 hours

CES Environmental Services, Inc. 4904 Griggs Rd. Houston, TX 77021 Phone (713) 676-1460 Fax (713) 676-1676 E-Mail cesenvironmental@yahoo.co

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### **Bloodborne Pathogens**

This course is designed to increase employee awareness of possible infection from bloodborne diseases and how your employees can protect themselves from exposure. This course is covered as part of the Hazwoper courses or as an individual course.

#### Who Must Comply

All employers that have at least one associate who can potentially be exposed to blood or other potentially infectious materials (1910.1030).

NOTE: All employees and new employees must be trained initially and complete an annual refresher.

#### What is Covered

- -Most common bloodborne diseases and how they are transmitted.
- -How to control exposure and the PPE that should be used.
- -What to do in case of exposure.
- -Procedures used to clean up and report these exposures.
- -All courses are available in English and Spanish

#### Course Length

Approximately 1 hour

### **Confined Space Entry**

This course is designed to trains your employees the rules and hazards of dealing with confined spaces. This course combines instruction with situational examples of proper confined space procedures. This course is covered as part of the Hazwoper courses or as an individual course.

#### Who Must Comply

Companies who expose their employees to any permit required confined space. This would include areas that are permit required that may have a hazardous atmosphere, potential of engulfment, hazardous internal configuration, or a hazardous material (1910.146)

NOTE: Initial training and annual retraining is required.

#### What is Covered

- -Definition and examples of confined spaces.
- -Identify potential hazards of confined spaces
- -The confined space entry permit and preparation of the confined space.
- -Roles of the confined space entrant, attendant, supervisor, and rescue personnel.
- -What to do in case of emergency.
- -Mock confined space entry.
- -All courses are available in English and Spanish.

#### Course Length

Approximately 2 1/2 hours

### **Fire Safety**

This course gives your employees basic skills and knowledge to extinguish small industrial fires. It also covers ways to prevent fires from occurring and how to identify types of fires and the properties of fire. This course is covered as part of the Hazwoper courses or as an individual course.

#### Who Must Comply

All employees covered by OSHA except maritime, construction, and agriculture. *NOTE: Initial training is required and a refresher annually (1910.157).* 

#### What is Covered

- -The elements of a fire.
- -The different classes of fires.
- -The different kinds of fire extinguishers.
- -Fire extinguisher inspections.
- -Duties of a fire watch.
- -Basic procedures on how to report fires.
- -All courses are available in English and Spanish

#### Course Length

Approximately 1 1/2 hours

### Forklift Training

This course is designed to increase employee awareness of the possible dangers of operating a forklift and safety procedures that should be used to prevent accidents.

#### Who Must Comply

All employees who operate a motorized vehicle. Employees must be certified on the same kind of motorized vehicle that they will be working on (1910.178). A refresher is required every 3 years.

NOTE: This is the classroom instruction and written test only. A driving test is required. This can be done by anyone who is proficient in the particular kind of motorized vehicle that they will be operating (Example: an employee who has 5 years experience with the same kind of lift). Initial certification is required. Re-certification is required every 3 years. CES can perform the driving portion for the forklifts such as the 5000lb and 8000lb diesel sit down variety or may be able to come to a customer site depending on the type of lift.

#### What is Covered

- -Forklift inspection and reporting damaged equipment.
- -Driving techniques and weight limits.
- -Safety procedures to prevent accidents.
- -All courses are available in English and Spanish.

#### Course Length

Approximately 2 hours

### **Hazardous Communication**

This course is designed to help your employees identify hazardous material and what precautions they should use to protect themselves and others from the dangers of hazardous materials. This course is covered as part of the Hazwoper courses or as an individual course.

#### Who Must Comply

All employers and employees who handle hazardous materials or substances (1910.1200).

NOTE: Initial training is required and additional training is required when new hazardous chemicals are introduced in the workplace. For this reason, annual training is recommended.

#### What is Covered

- -The OSHA hazardous communication standard.
- -Identify physical and health hazards.
- -How to identify and read product warning labels.
- -How to read MSDS sheets
- -All courses are available in English and Spanish.

#### Course Length

Approximately 2 hours

### Hazwoper Refresher

This course is a required refresher for those employees who are Hazwoper trained.

#### Who Must Comply

All managers and employees who have been previously Hazwoper trained.

Note: The update is required 1 year after the employee was Hazwoper trained, but cannot be more than 2 years at which time Hazwoper training must be repeated (1910.120).

#### What is Covered

- -Regulatory overview
- -Identification of hazardous substances
- -Personal protective equipment
- -Hazardous communications
- -Respiratory Protection
- -Confined space entry
- -Bloodborne Pathogens
- -Safe work practices
- -How to use the DOT Emergency Response Guidebook
- -Detecting hazardous substances
- -Overview & test
- -All training is available in English and Spanish

#### Course Length

8 hours

### <u> Hazwoper (8 Hour)</u>

This course is designed to train your employees how to initiate a first response to the release of a hazardous material as a "first responder" and react in a defensive manner.

#### Who Must Comply

Managers or employees who may be expected to respond to chemical spill or release in a defensive manner as part of the initial response.

NOTE: Annual retraining is required for all Hazwoper trained employees 1910.120(q)(6)(II).

#### What is Covered

- -What hazardous materials are and the risks associated with them.
- -Understand potential outcomes associated with an emergency created when a hazardous material is present.
- -How to recognize the presence of a hazardous material in an emergency.
- -How to identify hazardous materials.
- -The role of a first responder and how to use the DOT Emergency Response Guide Book.
- -The ability to realize if additional resources are needed and take appropriate actions.
- -Basic Hazard and risk assessments.
- -How to select and use PPE.
- -Basic hazardous materials terms.
- -Basic control and containment operations
- -Basic decontamination procedures.
- -Understanding operating and termination procedures.
- -All courses are available in English and Spanish.

#### Course Length

8 hours

### Hazwoper (24 Hour)

This course is designed to train your employees how to detect and respond to the release of a hazardous material in a defensive manner.

#### Who Must Comply

Managers or employees who may be expected to respond to chemical spill or release in a more aggressive manner for purposes of stopping the release.

NOTE: Annual retraining is required for all Hazwoper trained employees
1910.120(q)(6)(iii).

#### What is Covered

- -All material covered in the 8 hr course plus the following:
- -How to implement as emergency response plan.
- -How to use instruments and equipment to classify and identify known or unknown materials.
- -How to function in their role in a release.
- -Hazard and risk assessment techniques.
- -Advanced control and containment.
- -Implementing decontamination procedures.
- -Toxicology and behavior of hazardous materials.

#### Course Length

24 hours

Note: Breakfast and lunch will be provided for all students.

### Hazwoper (40 Hour)

This course is designed to train your employees how to detect and respond to the release of a hazardous material in an aggressive manner to the point of stopping the release and cleaning up contaminated areas.

#### Who Must Comply

Managers or employees who may be expected to respond to chemical spill or release in an aggressive manner or those employees responsible for stopping or cleaning up a release of hazardous material.

NOTE: Annual retraining is required for all Hazwoper trained employees 1910.120 (q) (6)(v).

#### What is Covered

- -All material covered in the Hazwoper Level I and II classes plus the following:
- -How to implement a local emergency response plan.
- -Advanced PPE.
- -In-depth hazard and risk techniques.
- -Advanced control and containment.
- -Be able to develop a site safety and control plan.
- -Radiological behavior.
- -How to implement emergency response plans.
- -Know the states emergency response plan and the Federal Regional Response Team.
- -How to be an Incident Commander.
- -All courses are available in English and Spanish.

#### Course Length

40 hours

Note: Breakfast and lunch will be provided for all students.

CES Environmental Services, Inc. 4904 Griggs Rd. Houston, TX 77021 Phone (713) 676-1460 Fax (713) 676-1676 E-Mail cesenvironmental@yahoo.com

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### **Hearing Conservation**

This course helps your employees understand how different industrial noises can affect their hearing and how to protect against loss of hearing. This course also provides a yearly audiogram as required for those employees who are at risk. This course is covered as part of the Hazwoper courses or as an individual course.

#### Who Must Comply

All employees covered by OSHA except maritime, construction, and agriculture. *NOTE: Initial training is required and as needed (1910.95).* 

#### What is Covered

- -The elements of a fire.
- -The different classes of fires.
- -The different kinds of fire extinguishers.
- -Fire extinguisher inspections.
- -Duties of a fire watch.
- -Basic procedures on how to report fires.
- -Auditory testing is available (This is required yearly).
- -All courses are available in English and Spanish.

#### Course Length

Approximately 1 1/2 hours

### Lock-Out-Tag-Out

This course is designed to teach your employees shut down/start-up procedures and how to identify and control hazardous energy in the work place. This course is covered as part of the Hazwoper courses or as an individual course.

#### Who Must Comply

Companies who service, maintain, or operate equipment that could potentially harm an individual when an unexpected start-up occurs (1910.147).

NOTE: Initial training and annual retraining is required.

#### What is Covered

- -Identify potential energy sources.
- -When to lock-out-tag-out.
- -Examples of energy isolation devices.
- -Lock-out-tag-out procedures.
- -All courses are available in English and Spanish.

#### Course Length

Approximately 1 1/2 hours

CES Environmental Services, Inc. 4904 Griggs Rd. Houston, TX 77021 Phone (713) 676-1460 Fax (713) 676-1676 E-Mail cesenvironmental@yahoo.com

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### **Personal Protective Equipment**

This course is designed to train employees how and when to use various kinds of personal protective equipment. This course is covered as part of the Hazwoper courses or as an individual course.

#### Who Must Comply

Any companies that require associates to wear personal protective equipment. Employees must wear PPE if hazardous conditions exist.

NOTE: Initial training is required and when employees show they did not retain the training information. For this reason, annual training is recommended to protect the

#### What is Covered

-When and how to use various types of the following:

employer from possible recourse (1910.132).

- \*Hand protection
- \*Foot protection
- \*Eye protection
- \*Head protection
- \*Hearing protection
- -How to clean and maintain PPE.
- -All courses are available in English and Spanish.

#### Course Length

Approximately 2 hours

### **Temperature Stress**

This course is designed to increase employee awareness of the symptoms of various temperature stress hazards and what to do when a person becomes exposed to these hazards. This course is covered as part of the Hazwoper courses or as an individual course.

#### Who Should Comply

All employers that have associates who are exposed to conditions that could cause a person to have a temperature stress related sickness. Training is recommended initially to help prevent injuries by making your associates aware of the signs, symptoms, and treatment procedures of temperature stress illnesses.

#### What is Covered

- -Most common temperature stress hazards.
- -The symptoms of these temperature stress related sicknesses.
- -Factors that could increase your risk of becoming a victim of a temperature stress condition.
- -What to do and what not to do in case of exposure.
- -All courses available in English and Spanish.

#### Course Length

Approximately 1 hour

### SECTION II OSHA TRAIN REQUIREMENTS OSHA REGULATIONS

#### GENERAL INDUSTRY TRAINING REQUIREMENTS

The following training requirements have been taken from Title 29 CFR Part 1910. Note that additional training requirements may appear in certain other standards (ANSI, NFPA, etc.) adopted by reference in Part 1910 and therefore are mandatory. The training requirements that follow are listed by subject and standard number.

#### **MEANS OF EGRESS**

### Employee Emergency Plans and Fire Prevention Plans §1910.38(a)(5)(i)-(iii)

- (i) Before implementing the emergency action plan, the employer shall designate and train a sufficient number of persons to assist in the safe and orderly emergency evacuation of employees.
- (ii) The employer shall review the plan with each employee covered by the plan at the following times:
- (a) Initially when the plan is developed,
- (b) Whenever the employee's responsibilities or designated actions under the plan change, and
- (c) Whenever the plan is changed.
- (iii) The employer shall review with each employee upon initial assignment those parts of the plan which the employee must know to protect the employee in the event of an emergency. The written plan shall be kept at the workplace and made available for employee review. For those employers with 10 or fewer employees the plan may be communicated orally to employees and the employer need not maintain a written plan.

#### §1910.38(b)(4)(i)-(ii)

- (i) The employer shall apprise employees of the fire hazards of the materials and processes to which they are exposed.
- (ii) The employer shall review with each employee upon initial assignment those parts of the fire prevention plan which the employee must know to protect the employee in the event of an emergency. The written plan shall be kept in the workplace and made available for employee review. For those employers with 10 or fewer employees, the plan may be communicated orally to employees and the employer need not maintain a written plan.

#### POWERED PLATFORMS, MANLIFTS, AND VEHICLE-MOUNTED WORK PLATFORMS

### Powered Platforms §1910.66 (i)(1)

(i) Working platforms shall be operated only by persons who are proficient in the operation, safe use and inspection of the particular working platform to be operated.

TRAINING REQUIREMENTS-10E 4/99

#### §1910.94(d)(11)(v)

(v) If, in emergencies, such as rescue work, it is necessary to enter a tank which may contain a hazardous atmosphere, suitable respirators, such as self-contained breathing apparatus; hose mask with blower, if there is a possibility of oxygen deficiency; or a gas mask, selected and operated in accordance with \$1910.94(d)(9)(vi), shall be used. If a contaminant in the tank can cause dermatitis, or be absorbed through the skin, the employee entering the tank shall also wear protective clothing. At least one trained standby employee, with suitable respirator, shall be present in the nearest uncontaminated area. The standby employee must be able to communicate with the employee in the tank and be able to haul him out of the tank with a lifeline if necessary.

### Occupational Noise Exposure §1910.95(i)(4)

(4) The employer shall provide training in the use and care of all hearing protectors provided to employees.

#### §1910.95(k)-(l)

- (k) Training program.
- (1) The employer shall institute a training program for all employees who are exposed to noise at or above an 8-hour time-weighted average of 85 decibels, and shall ensure employee participation in such program.
- (2) The training program shall be repeated annually for each employee included in the hearing conservation program. Information provided in the training program shall be updated to be consistent with changes in protective equipment and work processes.
- (3) The employer shall ensure that each employee is informed of the following:
- (i) The effects of noise on hearing;
- (ii) The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care; and
- (iii) The purpose of audiometric testing, and an explanation of the test procedures.
- (I) Access to information and training materials.
- (1) The employer shall make available to affected employees or their representatives copies of this standard and shall also post a copy in the workplace.
- (2) The employer shall provide to affected employees any information materials pertaining to the standard that are supplied to the employer by the Assistant Secretary.
- (3) The employer shall provide, upon request, all materials related to the employer's training and education program pertaining to this standard to the Assistant Secretary and the Director.

#### HAZARDOUS MATERIALS

#### Hydrogen §1910.103(c)(4)(ii)

(ii) Attendant. A qualified person shall be in attendance at all times while the mobile hydrogen supply unit is being unloaded.

### Flammable and Combustible Liquids §1910.106(b)(5)(vi)(v)(2) and (3)

- (2) That detailed printed instructions of what to do in flood emergencies are properly posted.
- (3) That station operators and other employees depended upon to carry out such instructions are thoroughly informed as to the location and operation of such valves and other equipment necessary to effect these requirements.

### Explosives and Blasting Agents §1910.109(d)(1)(iii)

(iii) Explosives shall not be transferred from one vehicle to another within the confines of any jurisdiction (city, county, State, or other area) without informing the fire and police departments thereof. In the event of breakdown or collision the local fire and police departments shall be promptly notified to help safeguard such emergencies. Explosives shall be transferred from the disabled vehicle to another only when proper and qualified supervision is provided.

#### §1910.109(d)(2)(iii)(b)

(b) Extinguishers shall be filled and ready for immediate use and located near the driver's seat. Extinguishers shall be examined periodically by a competent person.

#### §1910.109(d)(3)(i)

(i) Vehicles transporting explosives shall only be driven by and be in the charge of a driver who is familiar with the traffic regulations, State laws, and the provisions of §1910.109.

#### §1910.109(d)(3)(iii)

(iii) Every motor vehicle transporting any quantity of Class A or Class B explosives shall, at all times, be attended by a driver or other attendant of the motor carrier. This attendant shall have been made aware of the class of the explosive material in the vehicle and of its inherent dangers, and shall have been instructed in the measures and procedures to be followed in order to protect the public from those dangers. He shall have been made familiar with the vehicle he is assigned, and shall be trained, supplied with the necessary means, and authorized to move the vehicle when required.

#### §1910.109(g)(3)(iii)(a)

(iii)(a) The operator shall be trained in the safe operation of the vehicle together with its mixing, conveying, and related equipment. The employer shall assure that the operator is familiar with the commodities being delivered and the general procedure for handling emergency situations.

#### §1910.109(g)(3)(iv)(c)

(c) A qualified person shall evaluate all systems to determine if they will adequately dissipate static under potential field conditions.

#### §1910.109(g)(5)(vii)

(vii) Every warehouse used for the storage of blasting agents shall be under the supervision of a competent person.

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#### §1910.109(g)(6)(ii)

(ii) Vehicles transporting blasting agents shall only be driven by and be in charge of a driver in possession of a valid motor vehicle operator's license. Such a person shall also be familiar with the State's vehicle and traffic laws.

#### §1910.109(h)(4)(i)(a)

(a) Vehicles used over public highways for the bulk transportation of water gels or of ingredients classified as dangerous commodities shall meet the requirements of the Department of Transportation and shall meet the requirements of paragraphs (d) and (g)(6) of §1910.109.

### Storage and Handling of Liquified Petroleum Gases §1910.110(b)(16)

(16) Instructions. Personnel performing installation, removal, operation, and maintenance work shall be properly trained in such function.

#### §1910.110(d)(12)(i)

(i) When standard watch service is provided, it shall be extended to the LP-Gas installation and personnel properly trained.

#### §1910.110(h)(11)(vii)

(vii) The dispensing of LP-Gas into the fuel container of a vehicle shall be performed by a competent attendant who shall remain at the LP-Gas dispenser during the entire transfer operation.

### Storage and Handling of Anhydrous Ammonia §1910.111(b)(1)(iv)

(iv) It is a custom-designed and custom-built unit, which no nationally recognized testing laboratory, or Federal, State, municipal or local authority responsible for the enforcement of a Federal, State, municipal, or local law, code or regulation pertaining to the storage transportation and use of anhydrous ammonia is willing to undertake to accept, certify, list, label or determine to be safe, and the employer has on file a document attesting to its safe condition following the conduct of appropriate tests. The document shall be signed by a registered professional engineer or other person having special training or experience sufficient to permit him to form an opinion as to safety of the unit involved. The document shall set forth the test bases, test data and results, and also the qualifications of the certifying person.

#### §1910.111(b)(13)(ii)

(ii) The employer shall insure that unloading operations are performed by reliable persons properly instructed and given the authority to monitor careful compliance with all applicable procedures.

### Process Safety Management of Highly Hazardous Chemicals §1910.119(g)(1)(i) and (ii)

- (i) Employees presently involved in operating a process and employees before being involved in a newly assigned process must be trained in an overview of the process and in the written operating procedures prepared by the employer under §1910.119(f). The training must include emphasis on the specific safety and health hazards, emergency operations including shutdown, and safe work practices applicable to the employee's job tasks.
- (ii) In lieu of the initial training for those employees already involved in operating a process on May 26, 1992, an employer may certify in writing that the employee has the required knowledge, skills, and abilities to safely carry out the duties and responsibilities specified in the written operating procedures.

#### §1910.119(g)(2)

(2) Refresher training must be provided at least every three years, and more often if necessary, to each employee involved in operating a process to assure that the employee understands and adheres to the current operating procedures of the process. The appropriate frequency of refresher training is to be determined by the employer in consultation with the employees involved in operating the process.

#### §1910.119(g)(3)

(3) The employer must ascertain that each employee involved in operating a process received and understood the training required. The employer must prepare a record which contains the identity of the employee, the date of the training, and the means used to verify that the employee understood the training.

#### §1910.119(h)(2)(ii) and (iii)

- (ii) The employer must inform contract employees of the known potential fire, explosion, or toxic release hazards related to the contractor's work and the process.
- (iii) The employer shall explain to contract employers the applicable provisions of the emergency action plan (which is required by 1910.119(n)).

#### §1910.119(h)(3)(i),(ii), and (iii)

- (i) The contract employer must ensure that each contract employee is trained in the work practices necessary to safely perform his or her job.
- (ii) The contract employer must ensure that each contract employee is instructed in the known potential fire, explosion, or toxic release hazards related to his or her job and the process, as well as the applicable provisions of the emergency action plan.
- (iii) The contract employer must document that each contract employee has received and understood the training required. A record which contains the identity of the contract employee, the date of training, and the means used to verify that the employee understood the training must be prepared by the contract employer.

#### §1910.119(i)(2)(iv)

(iv) The training of each employee involved in operating a process must be completed and confirmed in a pre-startup safety review prior to the introduction of highly hazardous chemicals to a process.

#### §1910.119(j)(3)

(3) Employers must train each employee involved in maintaining the on-going integrity of process equipment in an overview of that process and its hazards and in the procedures applicable to the employee's job tasks to assure that the employee can perform the job tasks in a safe manner.

#### §1910.119(I)(3)

(3) Employees involved in operating a process and maintenance and contract employees whose job tasks will be affected by a change in a process shall be informed of, and trained in, the change prior to start-up of the process or affected part of the process.

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### Hazardous Waste Operations and Emergency Response §1910.120(e)(1) through (9)

- (e) Training-
- (1) General.
- (i) All employees working on site (such as but not limited to equipment operators, general laborers and others) exposed to hazardous substances, health hazards, or safety hazards and their supervisors and management responsible for the site shall receive training meeting the requirements of this paragraph before they are permitted to engage in hazardous waste operations that could expose them to hazardous substances, safety hazards, or health hazards, and they shall receive review training as specified in §1910.120(e).
- (ii) Employees shall not be permitted to participate in or supervise field activities until they have been trained to a level required by their job function and responsibility.
- (2) Elements to be covered. The training shall thoroughly cover the following:
- (i) Names of personnel and alternates responsible for site safety and health;
- (ii) Safety, health and other hazards present on the site;
- (iii) Use of personal protective equipment;
- (iv) Work practices by which the employee can minimize risks from hazards;
- (v) Safe use of engineering controls and equipment on the site;
- (vi) Medical surveillance requirements, including recognition of symptoms and signs which might indicate overexposure to hazards; and
- (vii) The contents of paragraphs (G) through (J) of the site safety and health plan set forth in §1910.120(b)(4)(ii).
- (3) Initial Training.
- (i) General site workers (such as equipment operators, general laborers and supervisory personnel) engaged in hazardous substance removal or other activities which expose or potentially expose workers to hazardous substances and health hazards shall receive a minimum of 40 hours of instruction off the site, and a minimum of three days actual field experience under the direct supervision of a trained, experienced supervisor.
- (ii) Workers on site only occasionally for a specific limited task (such as, but not limited to, groundwater monitoring, land surveying, or geo-physical surveying) and who are unlikely to be exposed over permissible exposure limits and published exposure limits shall receive a minimum of 24 hours of instruction off the site, and the minimum of one day actual field experience under the direct supervision of a trained, experienced supervisor.
- (iii) Workers regularly on site who work in areas which have been monitored and fully characterized indicating that exposures are under permissible exposure limits and published exposure limits where respirators are not necessary, and the characterization indicates that there are no health hazards or the possibility of an emergency developing, shall receive a minimum of 24 hours of instruction off the site and the minimum of one day actual field experience under the direct supervision of a trained, experienced supervisor.
- (iv) Workers with 24 hours of training who are covered by §1910.120(a)(3) (ii) and (iii), and who become general site workers or who are required to wear respirators, shall have the additional 16 hours and two days of training necessary to total the training specified in §1910.120(e)(3)(i).
- (4) Management and supervisor training. Onsite management and supervisors directly responsible for, or who supervise employees engaged in, hazardous waste operations shall receive 40 hours initial training, and three days of supervised field experience (the training may be reduced to 24 hours and one day if the

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only area of their responsibility is employees covered by §1910.120(e)(3) (ii) and (iii)) and at least eight additional hours of specialized training at the time of job assignment on such topics as, but not limited to, the employer's safety and health program and the associated employee training program, personal protective equipment program, spill containment program, and health hazard monitoring procedure and techniques.

- (5) Qualifications for trainers. Trainers shall be qualified to instruct employees about the subject matter that is being presented in training. Such trainers shall have satisfactorily completed a training program for teaching the subjects they are expected to teach, or they shall have the academic credentials and instructional experience necessary for teaching the subjects. Instructors shall demonstrate competent instructional skills and knowledge of the applicable subject matter.
- (6) Training certification. Employees and supervisors that have received and successfully completed the training and field experience specified §1910.120(e) (1)-(4) shall be certified by their instructor or the head instructor and trained supervisor as having successfully completed the necessary training. A written certificate shall be given to each person so certified. Any person who has not been so certified or who does not meet the requirements of §1910.120(e)(9) shall be prohibited from engaging in hazardous waste operations.
- (7) Emergency response. Employees who are engaged in responding to hazardous emergency situations at hazardous waste clean-up sites that may expose them to hazardous substances shall be trained in how to respond to such expected emergencies.
- (8) Refresher training. Employees specified in §1910.120(e)(1), and managers and supervisors specified in §1910.120(e)(4), shall receive eight hours of refresher training annually on the items specified in paragraph (e)(2) and/or (e)(4) of §1910.120, any critique of incidents that have occurred in the past year that can serve as training examples of related work, and other relevant topics.
- (9) Equivalent training. Employers who can show by documentation or certification that an employee's work experience and/or training has resulted in training equivalent to that training required in \$1910.120(e) (1)-(4) shall not be required to provide the initial training requirements of those paragraphs to such employees. However, certified employees new to a site shall receive appropriate, site specific training before site entry and have appropriate supervised field experience at the new site. Equivalent training includes any academic training or the training that existing employees might have already received from actual hazardous waste site work experience.

#### §1910.120(i)

(i) Informational programs. Employers shall develop and implement a program, which is part of the employer's safety and health program required in §1910.120(b), to inform employees, contractors, and subcontractors (or their representative) actually engaged in hazardous waste operations of the nature, level and degree of exposure likely as a result of participation in such hazardous waste operations. Employees, contractors and subcontractors working outside of the operations part of a site are not covered by this standard.

#### §1910.120(p)(7)(i)-(iii)

- (p) Certain Operations Conducted Under the Resource Conservation and Recovery Act of 1976 (RCRA). Employers conducting operations at treatment, storage, and disposal (TSD) facilities specified in paragraph (a)(1)(iv) of §1910.120 not exempted by paragraph (a)(2)(iii) shall provide and implement the programs specified in paragraph (p).
- (7) Training program-
- (i) New employees. The employer shall develop and implement a training program, which is part of the employer's safety and health program, for employees involved with hazardous waste operations to enable employees to perform their assigned duties and functions in a safe and healthful manner so as not to endanger themselves or other employees. The initial training shall be for 24 hours and refresher training shall be for eight hours annually. Employees who have received the initial training required by this para-

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graph shall be given a written certificate attesting that they have successfully completed the necessary training.

- (ii) Current employees. Employers who can show by an employee's previous work experience and/or training that the employee has had training equivalent to the initial training required by §1910.120(p), shall be considered as meeting the initial training requirements of this paragraph as to that employee. Equivalent training includes the training that existing employees might have already received from actual site work experience. Current employees shall receive eight hours of refresher training annually.
- (iii) *Trainers*. Trainers who teach initial training shall have satisfactorily completed a training course for teaching the subjects they are expected to teach or they shall have the academic credentials and instruction experience necessary to demonstrate a good command of the subject matter of the courses and competent instructional skills.

#### §1910.120(p)(8)(iii)

- (iii) Training.
- (A) Training for emergency response employees shall be completed before they are called upon to perform in real emergencies. Such training shall include the elements of the emergency response plan, standard operating procedures the employer has established for the job, the personal protective equipment to be worn and procedures for handling emergency incidents.

Exception #1: An employer need not train all employees to the degree specified if the employer divides the work force in a manner such that a sufficient number of employees who have responsibility to control emergencies have the training specified, and all other employees, who may first respond to an emergency incident, have sufficient awareness training to recognize that an emergency response situation exists and that they are instructed in that case to summon the fully trained employees and not attempt control activities for which they are not trained.

Exception #2: An employer need not train all employees to the degree specified if arrangements have been made in advance for an outside fully-trained emergency response team to respond in a reasonable period and all employees, who may come to the incident first, have sufficient awareness training to recognize that an emergency response situation exists and they have been instructed to call the designated outside fully-trained emergency response team for assistance.

- (B) Employee members of TSD facility emergency response organizations shall be trained to a level of competence in the recognition of health and safety hazards to protect themselves and other employees. This would include training in the methods used to minimize the risk from safety and health hazards; in the safe use of control equipment; in the selection and use of appropriate personal protective equipment; in the safe operating procedures to be used at the incident scene; in the techniques of coordination with other employees to minimize risks; in the appropriate response to over-exposure from health hazards or injury to themselves and other employees; and in the recognition of subsequent symptoms which may result from over-exposure.
- (C) The employer shall certify that each covered employee has attended and successfully completed the training required in paragraph (p)(8)(iii) of §1910.120, or shall certify the employee's competency at least yearly. The method used to demonstrate competency for certification of training shall be recorded and maintained by the employer.

#### §1910.120(q)(4)-(8)

(q) Emergency response to hazardous substance releases. This paragraph covers employers whose employees are engaged in emergency response no matter where it occurs except that it does not cover employees engaged in operations specified in paragraphs (a)(1) (i) through (iv) of §1910.120. Those emergency response organizations who have developed and implemented programs equivalent to this paragraph for handling releases of hazardous substances pursuant to section 303 of the Superfund Amendments and Reauthorization Act of 1986 (Emergency Planning and Community Right to Know Act of 1986, 42 U.S.C. 11003) shall be deemed to have met the requirements of this paragraph.

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- (4) Skilled support personnel. Personnel, not necessarily an employer's own employees, who are skilled in the operation of certain equipment, such as mechanized earth moving or digging equipment or crane and hoisting equipment, and who are needed temporarily to perform immediate emergency support work that cannot reasonably be performed in a timely fashion by an employer's own employees, and who will be or may be exposed to the hazards at an emergency response scene, are not required to meet the training required in this paragraph for the employer's regular employees. However, these personnel shall be given an initial briefing at the site prior to their participation in any emergency response. The initial briefing shall include instruction in the wearing of appropriate personal protective equipment, what chemical hazards are involved, and what duties are to be performed. All other appropriate safety and health precautions provided to the employer's own employees shall be used to assure the safety and health of these personnel.
- (5) Specialist employees. Employees who, in the course of their regular job duties, work with and are trained in the hazards of specific hazardous substances, and who will be called upon to provide technical advice or assistance at a hazardous substance release incident to the individual in charge, shall receive training or demonstrate competency in the area of their specialization annually.
- (6) Training. Training shall be based on the duties and function to be performed by each responder of an emergency response organization. The skill and knowledge levels required for all new responders, those hired after the effective date of this standard, shall be conveyed to them through training before they are permitted to take part in actual emergency operations on an incident. Employees who participate, or are expected to participate, in emergency response, shall be given training in accordance with the following paragraphs:
- (i) First responder awareness level. First responders at the awareness level are individuals who are likely to witness or discover a hazardous substance release and who have been trained to initiate an emergency response sequence by notifying the proper authorities of the release. They would take no further action beyond notifying the authorities of the release. First responders at the awareness level shall have sufficient training or have had sufficient experience to objectively demonstrate competency in the following areas:
- (A) An understanding of what hazardous materials are, and the risks associated with them in an incident.
- (B) An understanding of the potential outcomes associated with an emergency created when hazardous materials are present.
- (C) The ability to recognize the presence of hazardous materials in an emergency.
- (D) The ability to identify the hazardous materials, if possible.
- (E) An understanding of the role of the first responder awareness individual in the employer's emergency response plan including site security and control and the U.S. Department of Transportation's Emergency Response Guidebook.
- (F) The ability to realize the need for additional resources, and to make appropriate notifications to the communication center.
- (ii) First responder operations level. First responders at the operations level are individuals who respond to releases or potential releases of hazardous substances as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release. They are trained to respond in a defensive fashion without actually trying to stop the release. Their function is to contain the release from safe distance, keep it from spreading, and prevent exposures. First responders at the operational level shall have received at least eight hours of training or have had sufficient experience to objectively demonstrate competency in the following areas in addition to those listed for the awareness level and the employer shall so certify:
- (A) Knowledge of the basic hazard and risk assessment techniques.
- (B) Know how to select and use proper personal protective equipment provided to the first responder operational level.

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- (C) An understanding of basic hazardous materials terms.
- (D) Know how to perform basic control, containment and/or confinement operations within the capabilities of the resources and personal protective equipment available with their unit.
- (E) Know how to implement basic decontamination procedures.
- (F) An understanding of the relevant standard operating procedures and termination procedures.
- (iii) Hazardous materials technician. Hazardous materials technicians are individuals who respond to releases or potential releases for the purpose of stopping the release. They assume a more aggressive role than a first responder at the operations level in that they will approach the point of release in order to plug, patch or otherwise stop the release of a hazardous substance. Hazardous materials technicians shall have received at least 24 hours of training equal to the first responder operations level and in addition have competency in the following areas and the employer shall so certify:
- (A) Know how to implement the employer's emergency response plan.
- (B) Know the classification, identification and verification of known and unknown materials by using field survey instruments and equipment.
- (C) Be able to function within an assigned role in the Incident Command System.
- (D) Know how to select and use proper specialized chemical personal protective equipment provided to the hazardous materials technician.
- (E) Understand hazard and risk assessment techniques.
- (F) Be able to perform advance control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available with the unit.
- (G) Understand and implement decontamination procedures.
- (H) Understand termination procedures.
- (I) Understand basic chemical and toxicological terminology and behavior.
- (iv) Hazardous materials specialist. Hazardous materials specialists are individuals who respond with and provide support to hazardous materials technicians. Their duties parallel those of the hazardous materials technician, however, those duties require a more directed or specific knowledge of the various substances they may be called upon to contain. The hazardous materials specialist would also act as the site liaison with Federal, state, local and other government authorities in regards to site activities. Hazardous materials specialists shall have received at least 24 hours of training equal to the technician level and in addition have competency in the following areas and the employer shall so certify:
- (A) Know how to implement the local emergency response plan.
- (B) Understand classification, identification and verification of known and unknown materials by using advanced survey instruments and equipment.
- (C) Know of the state emergency response plan.
- (D) Be able to select and use proper specialized chemical personal protective equipment provided to the hazardous materials specialist.
- (E) Understand in-depth hazard and risk techniques.
- (F) Be able to perform specialized control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available.
- (G) Be able to determine and implement decontamination procedures.
- (H) Have the ability to develop a site safety and control plan.
- (I) Understand chemical, radiological and toxicological terminology and behavior.

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- (v) On scene incident commander. Incident commanders, who will assume control of the incident scene beyond the first responder awareness level, shall receive at least 24 hours of training equal to the first responder operations level and in addition have competency in the following areas and the employer shall so certify:
- (A) Know and be able to implement the employer's incident command system.
- (B) Know how to implement the employer's emergency response plan.
- (C) Know and understand the hazards and risks associated with employees working in chemical protective clothing.
- (D) Know how to implement the local emergency response plan.
- (E) Know of the state emergency response plan and of the Federal Regional Response Team.
- (F) Know and understand the importance of decontamination procedures.
- (7) Trainers. Trainers who teach any of the above training subjects shall have satisfactorily completed a training course for teaching the subjects they are expected to teach, such as the courses offered by the U.S. Fire Academy, or they shall have the training and/or academic credentials and instructional experience necessary to demonstrate competent instruction skills and a good command of the subject matter of the courses they are to teach.
- (8) Refresher training.
- (i) Those employees who are trained in accordance with paragraph (q)(6) of §1910.120 shall receive annual refresher training of sufficient content and duration to maintain their competencies, or shall demonstrate competency in those areas at least yearly.
- (ii) A statement shall be made of the training or competency, and if a statement of competency is made, the employer shall keep a record of the methodology used to demonstrate competency.

#### §1910.120(q)(11)

- (11) Post-emergency response operations. Upon completion of the emergency response, if it is determined that it is necessary to remove hazardous substances, health hazards, and materials contaminated with them (such as contaminated soil or other elements of the natural environment) from the site of the incident, the employer conducting the clean-up shall comply with one of the following:
- (i) Meet all of the requirements of §1910.120(b) through (o); or
- (ii) Where the clean-up is done on plant property using plant or workplace employees, such employees shall have completed the training requirements of the following: 29 CFR 1910.38(a); 1910.134; 1910.1200, and other appropriate safety and health training made necessary by the tasks that are expected to be performed such as personal protective equipment to be used in the performance of the clean-up work shall be in serviceable condition and shall have been inspected prior to use.

#### PERSONAL PROTECTIVE EQUIPMENT

#### Personal Protective Equipment §1910.132(f)(1)-(4)

- (f) Training. (1) The employer shall provide training to each employee who is required by this section to use PPE. Each such employee shall be trained to know at least the following:
- (i) When PPE is necessary;
- (ii) What PPE is necessary;
- (iii) How to properly don, doff, adjust, and wear PPE;

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- (iv) The limitations of the PPE; and
- (v) The proper care, maintenance, useful life and disposal of the PPE.
- (2) Each affected employee shall demonstrate an understanding of the training specified in paragraph (f)(1) of this section, and the ability to use PPE properly, before being allowed to perform work requiring the use of PPE.
- (3) When the employer has reason to believe that any affected employee who has already been trained does not have the understanding and skill required by paragraph (f)(2) of this section, the employer shall retrain each such employee. Circumstances where retraining is required include, but are not limited to, situations where:
- (i) Changes in the workplace render previous training obsolete; or
- (ii) Changes in the types of PPE to be used render previous training obsolete; or
- (iii) Inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill.
- (4) The employer shall verify that each affected employee has received and understood the required training through a written certification that contains the name of each employee trained, the date(s) of training, and that identifies the subject of the certification.

### Respiratory Protection §1910.134(c)(1), (3)-(4)

- (c) Respiratory protection program. This paragraph requires the employer to develop and implement a written respiratory protection program with required worksite-specific procedures and elements for required respirator use. The program must be administered by a suitably trained program administrator. In addition, certain program elements may be required for voluntary use to prevent potential hazards associated with the use of the respirator.
- (1) In any workplace where respirators are necessary to protect the health of the employee or whenever respirators are required by the employer, the employer shall establish and implement a written respiratory protection program with worksite-specific procedures. The program shall be updated as necessary to reflect those changes in workplace conditions that affect respirator use. The employer shall include in the program the following provisions of this section, as applicable:
- (vii) Training of employees in the respiratory hazards to which they are potentially exposed during routine and emergency situations;
- (viii) Training of employees in the proper use of respirators, including putting on and removing them, any limitations on their use, and their maintenance.
- (3) The employer shall designate a program administrator who is qualified by appropriate training or experience that is commensurate with the complexity of the program to administer or oversee the respiratory protection program and conduct the required evaluations of program effectiveness.
- (4) The employer shall provide respirators, training, and medical evaluations at no cost to the employee.

#### §1910.134(g)(3)

- (3) Procedures for IDLH atmospheres. For all IDLH atmospheres, the employer shall ensure that:
- (iii) The employee(s) located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue.

#### §1910.134(k)(1)-(6)

- (k) Training and information. This paragraph requires the employer to provide effective training to employees who are required to use respirators. The training must be comprehensive, understandable, and recur annually, and more often if necessary. This paragraph also requires the employer to provide the basic information on respirators in Appendix D of this section to employees who wear respirators when not required by this section or by the employer to do so.
- (1) The employer shall ensure that each employee can demonstrate knowledge of at least the following:
- (i) Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;
- (ii) What the limitations and capabilities of the respirator are:
- (iii) How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;
- (iv) How to inspect, put on and remove, use, and check the seals of the respirator;
- (v) What the procedures are for maintenance and storage of the respirator;
- (vi) How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators; and
- (vii) The general requirements of this section.
- (2) The training shall be conducted in a manner that is understandable to the employee.
- (3) The employer shall provide the training prior to requiring the employee to use a respirator in the workplace.
- (4) An employer who is able to demonstrate that a new employee has received training within the last 12 months that addresses the elements specified in paragraph (k)(1)(i) through (vii) is not required to repeat such training provided that, as required by paragraph (k)(1), the employee can demonstrate knowledge of those element(s). Previous training not repeated initially by the employer must be provided no later than 12 months from the date of the previous training.
- (5) Retraining shall be administered annually, and when the following situations occur:
- (i) Changes in the workplace or the type of respirator render previous training obsolete;
- (ii) Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill; or
- (iii) Any other situation arises in which retraining appears necessary to ensure safe respirator use.
- (6) The basic advisory information on respirators, as presented in Appendix D of this section, shall be provided by the employer in any written or oral format, to employees who wear respirators when such use is not required by this section or by the employer.

#### §1910.134(n)(4)

(4) Existing Respiratory Protection Programs. If, in the 12 month period preceding April 8, 1998, the employer has conducted annual respirator training, fit testing, respirator program evaluation, or medical evaluations, the employer may use the results of those activities to comply with the corresponding provisions of this section, providing that these activities were conducted in a manner that meets the requirements of this section.

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#### GENERAL ENVIRONMENTAL CONTROLS

#### Temporary Labor Camps §1910.142(k)(1)-(2)

- (1) Adequate first aid facilities approved by a health authority shall be maintained and made available in every labor camp for the emergency treatment of injured persons.
- (2) Such facilities shall be in charge of a person trained to administer first aid and shall be readily accessible for use at all times.

## Specifications for Accident Prevention Signs and Tags §1910.145(c)(1)(ii), (2)(ii) and (3)

- (1)(ii) All employees shall be instructed that danger signs indicate immediate danger and that special precautions are necessary.
- (2)(ii) All employees shall be instructed that caution signs indicate a possible hazard against which proper precautions should be taken.
- (3) Safety instruction signs. Safety instruction signs shall be used where there is a need for general instructions and suggestions relative to safety measures.

## Permit-Required Confined Spaces §1910.146(d)(8), (g)-(k)

- (8) Designate the persons who are to have active roles (as, for example, authorized entrants, attendants, entry supervisors, or persons who test or monitor the atmosphere in a permit space) in entry operations, identify the duties of each such employee, and provide each such employee with the training required by paragraph (g) of this section;
- (g) *Training.* (1) The employer shall provide training so that all employees whose work is regulated by this section acquire the understanding, knowledge, and skills necessary for the safe performance of the duties assigned under this section.
- (2) Training shall be provided to each affected employee:
- (i) Before the employee is first assigned duties under this section;
- (ii) Before there is a change in assigned duties;
- (iii) Whenever there is a change in permit space operations that presents a hazard about which an employee has not previously been trained;
- (iv) Whenever the employer has reason to believe either that there are deviations from the permit space entry procedures required by paragraph (d)(3) of this section or that there are inadequacies in the employee's knowledge or use of these procedures.
- (3) The training shall establish employee proficiency in the duties required by this section and shall introduce new or revised procedures, as necessary, for compliance with this section.
- (4) The employer shall certify that the training required by paragraphs (g)(1) through (g)(3) of this section has been accomplished. The certification shall contain each employee's name, the signatures or initials of the trainers, and the dates of training. The certification shall be available for inspection by employees and their authorized representatives.
- (h) Duties of authorized entrants. The employer shall ensure that all authorized entrants:
- (1) Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;

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- (2) Properly use equipment as required by paragraph (d)(4) of this section;
- (3) Communicate with the attendant as necessary to enable the attendant to monitor entrant status and to enable the attendant to alert entrants of the need to evacuate the space as required by paragraph (i)(6) of this section;
- (4) Alert the attendant whenever:
- (i) The entrant recognizes any warning sign or symptom of exposure to a dangerous situation, or
- (ii) The entrant detects a prohibited condition; and
- (5) Exit from the permit space as quickly as possible whenever:
- (i) An order to evacuate is given by the attendant or the entry supervisor,
- (ii) The entrant recognizes any warning sign or symptom of exposure to a dangerous situation,
- (iii) The entrant detects a prohibited condition, or
- (iv) An evacuation alarm is activated.
- (i) Duties of attendants. The employer shall ensure that each attendant:
- (1) Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
- (2) Is aware of possible behavioral effects of hazard exposure in authorized entrants;
- (3) Continuously maintains an accurate count of authorized entrants in the permit space and ensures that the means used to identify authorized entrants under paragraph (f)(4) of this section accurately identifies who is in the permit space;
- (4) Remains outside the permit space during entry operations until relieved by another attendant;
- NOTE: When the employer's permit entry program allows attendant entry for rescue, attendants may enter a permit space to attempt a rescue if they have been trained and equipped for rescue operations as required by paragraph (k)(1) of this section and if they have been relieved as required by paragraph (i)(4) of this section.
- (5) Communicates with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space under paragraph (i)(6) of this section;
- (6) Monitors activities inside and outside the space to determine if it is safe for entrants to remain in the space and orders the authorized entrants to evacuate the permit space immediately under any of the following conditions:
- (i) If the attendant detects a prohibited condition;
- (ii) If the attendant detects the behavioral effects of hazard exposure in an authorized entrant;
- (iii) If the attendant detects a situation outside the space that could endanger the authorized entrants; or
- (iv) If the attendant cannot effectively and safely perform all the duties required under paragraph (i) of this section;
- (7) Summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards;
- (8) Takes the following actions when unauthorized persons approach or enter a permit space while entry is underway:
- (i) Warn the unauthorized persons that they must stay away from the permit space;

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- (ii) Advise the unauthorized persons that they must exit immediately if they have entered the permit space;
- (iii) Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space;
- (9) Performs non-entry rescues as specified by the employer's rescue procedure; and
- (10) Performs no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.
- (j) Duties of entry supervisors. The employer shall ensure that each entry supervisor:
- (1) Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
- (2) Verifies, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin;
- (3) Terminates the entry and cancels the permit as required by paragraph (e)(5) of this section;
- (4) Verifies that rescue services are available and that the means for summoning them are operable;
- (5) Removes unauthorized individuals who enter or who attempt to enter the permit space during entry operations; and
- (6) Determines, whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.
- (k) Rescue and emergency services.
- (1) An employer who designates rescue and emergency services, pursuant to paragraph (d)(9) of this section, shall:
- (i) Evaluate a prospective rescuer's ability to respond to a rescue summons in a timely manner, considering the hazard(s) identified;

Note to paragraph (k)(1)(i): What will be considered timely will vary according to the specific hazards involved in each entry. For example, §1910.134, Respiratory Protection, requires that employers provide a standby person or persons capable of immediate action to rescue employee(s) wearing respiratory protection while in work areas defined as IDLH atmospheres.

- (ii) Evaluate a prospective rescue service's ability, in terms of proficiency with rescue-related tasks and equipment, to function appropriately while rescuing entrants from the particular permit space or types of permit spaces identified;
- (iii) Select a rescue team or service from those evaluated that:
- (A) Has the capability to reach the victim(s) within a time frame that is appropriate for the permit space hazard(s) identified;
- (B) Is equipped for and proficient in performing the needed rescue services;
- (iv) Inform each rescue team or service of the hazards they may confront when called on to perform rescue at the site; and
- (v) Provide the rescue team or service selected with access to all permit spaces from which rescue may be necessary so that the rescue service can develop appropriate rescue plans and practice rescue operations.

Note to paragraph (k)(1): Non-mandatory Appendix F contains examples of criteria which employers can use in evaluating prospective rescuers as required by paragraph (k)(1) of this section.

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- (2) An employer whose employees have been designated to provide permit space rescue and emergency services shall take the following measures:
- (i) Provide affected employees with the personal protective equipment (PPE) needed to conduct permit space rescues safely and train affected employees so they are proficient in the use of that PPE, at no cost to those employees;
- (ii) Train affected employees to perform assigned rescue duties. The employer must ensure that such employees successfully complete the training required to establish proficiency as an authorized entrant, as provided by paragraphs (g) and (h) of this section;
- (iii) Train affected employees in basic first-aid and cardiopulmonary resuscitation (CPR). The employer shall ensure that at least one member of the rescue team or service holding a current certification in first aid and CPR is available; and
- (iv) Ensure that affected employees practice making permit space rescues at least once every 12 months, by means of simulated rescue operations in which they remove dummies, manikins, or actual persons from the actual permit spaces or from representative permit spaces. Representative permit spaces shall, with respect to opening size, configuration, and accessibility, simulate the types of permit spaces from which rescue is to be performed.
- (3)(i) Each authorized entrant shall use a chest or full body harness, with a retrieval line attached at the center of the entrant's back near shoulder level, above the entrant's head, or at another point which the employer can establish presents a profile small enough for the successful removal of the entrant. Wristlets may be used in lieu of the chest or full body harness if the employer can demonstrate that the use of a chest or full body harness is infeasible or creates a greater hazard and that the use of wristlets is the safest and most effective alternative.

#### Non-Mandatory Appendix F—Rescue Team or Rescue Service Evaluation Criteria

- (1) This appendix provides guidance to employers in choosing an appropriate rescue service. It contains criteria that may be used to evaluate the capabilities both of prospective and current rescue teams. Before a rescue team can be trained or chosen, however, a satisfactory permit program, including an analysis of all permit-required confined spaces to identify all potential hazards in those spaces, must be completed. OSHA believes that compliance with all the provisions of §1910.146 will enable employers to conduct permit space operations without recourse to rescue services in nearly all cases. However, experience indicates that circumstances will arise where entrants will need to be rescued from permit spaces. It is therefore important for employers to select rescue services or teams, either on-site or off-site, that are equipped and capable of minimizing harm to both entrants and rescuers if the need arises.
- (2) For all rescue teams or services, the employer's evaluation should consist of two components: an initial evaluation, in which employers decide whether a potential rescue service or team is adequately trained and equipped to perform permit space rescues of the kind needed at the facility and whether such rescuers can respond in a timely manner, and a performance evaluation, in which employers measure the performance of the team or service during an actual or practice rescue. For example, based on the initial evaluation, an employer may determine that maintaining an on-site rescue team will be more expensive than obtaining the services of an off-site team, without being significantly more effective, and decide to hire a rescue service. During a performance evaluation, the employer could decide, after observing the rescue service perform a practice rescue, that the service's training or preparedness was not adequate to effect a timely or effective rescue at his or her facility and decide to select another rescue service, or to form an internal rescue team.

#### A. Initial Evaluation

- I. The employer should meet with the prospective rescue service to facilitate the evaluations required by §§1910.146(k)(1)(i) and 1910.146(k)(1)(ii). At a minimum, if an off-site rescue service is being considered, the employer must contact the service to plan and coordinate the evaluations required by the standard. Merely posting the service's number or planning to rely on the 911 emergency phone number to obtain these services at the time of a permit space emergency would not comply with paragraph (k)(1) of the standard.
- II. The capabilities required of a rescue service vary with the type of permit spaces from which rescue may be necessary and the hazards likely to be encountered in those spaces. Answering the questions below will assist employers in determining whether the rescue service is capable of performing rescues in the permit spaces present at the employer's workplace.
- 1. What are the needs of the employer with regard to response time (time for the rescue service to receive notification, arrive at the scene, and set up and be ready for entry)? For example, if entry is to be made into an IDLH atmosphere, or into a space that can quickly develop an IDLH atmosphere (if ventilation fails or for other reasons), the rescue team or service would need to be standing by at the permit space. On the other hand, if the danger to entrants is restricted to mechanical hazards that would cause injuries (e.g., broken bones, abrasions) a response time of 10 or 15 minutes might be adequate.

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- 2. How quickly can the rescue team or service get from its location to the permit spaces from which rescue may be necessary? Relevant factors to consider would include: the location of the rescue team or service relative to the employer's workplace, the quality of roads and highways to be traveled, potential bottlenecks or traffic congestion that might be encountered in transit, the reliability of the rescuer's vehicles, and the training and skill of its drivers.
- 3. What is the availability of the rescue service? Is it unavailable at certain times of the day or in certain situations? What is the likelihood that key personnel of the rescue service might be unavailable at times? If the rescue service becomes unavailable while an entry is underway, does it have the capability of notifying the employer so that the employer can instruct the attendant to abort the entry immediately?
- 4. Does the rescue service meet all the requirements of paragraph (k)(2) of the standard? If not, has it developed a plan that will enable it to meet those requirements in the future? If so, how soon can the plan be implemented?
- 5. For off-site services, is the service willing to perform rescues at the employer's workplace? (An employer may not rely on a rescuer who declines, for whatever reason, to provide rescue services.)
- 6. Is an adequate method for communications between the attendant, employer and prospective rescuer available so that a rescue request can be transmitted to the rescuer without delay? How soon after notification can a prospective rescuer dispatch a rescue team to the entry site?
- 7. For rescues into spaces that may pose significant atmospheric hazards and from which rescue entry, patient packaging and retrieval cannot be safely accomplished in a relatively short time (15-20 minutes), employers should consider using airline respirators (with escape bottles) for the rescuers and to supply rescue air to the patient. If the employer decides to use SCBA, does the prospective rescue service have an ample supply of replacement cylinders and procedures for rescuers to enter and exit (or be retrieved) well within the SCBA's air supply limits?
- 8. If the space has a vertical entry over 5 feet in depth, can the prospective rescue service properly perform entry rescues? Does the service have the technical knowledge and equipment to perform rope work or elevated rescue, if needed?
- 9. Does the rescue service have the necessary skills in medical evaluation, patient packaging and emergency response?
- 10. Does the rescue service have the necessary equipment to perform rescues, or must the equipment be provided by the employer or another source?
- B. Performance Evaluation

Rescue services are required by paragraph (k)(2)(iv) of the standard to practice rescues at least once every 12 months, provided that the team or service has not successfully performed a permit space rescue within that time. As part of each practice session, the service should perform a critique of the practice rescue, or have another qualified party perform the critique, so that deficiencies in procedures, equipment, training, or number of personnel can be identified and corrected. The results of the critique, and the corrections made to respond to the deficiencies identified, should be given to the employer to enable it to determine whether the rescue service can quickly be upgraded to meet the employer's rescue needs or whether another service must be selected. The following questions will assist employers and rescue teams and services evaluate their performance.

- 1. Have all members of the service been trained as permit space entrants, at a minimum, including training in the potential hazards of all permit spaces, or of representative permit spaces, from which rescue may be needed? Can team members recognize the signs, symptoms, and consequences of exposure to any hazardous atmospheres that may be present in those permit spaces?
- 2. Is every team member provided with, and properly trained in, the use and need for PPE, such as SCBA or fall arrest equipment, which may be required to perform permit space rescues in the facility? Is every team member properly trained to perform his or her functions and make rescues, and to use any rescue equipment, such as ropes and backboards, that may be needed in a rescue attempt?
- 3. Are team members trained in the first aid and medical skills needed to treat victims overcome or injured by the types of hazards that may be encountered in the permit spaces at the facility?
- 4. Do all team members perform their functions safely and efficiently? Do rescue service personnel focus on their own safety before considering the safety of the victim?
- 5. If necessary, can the rescue service properly test the atmosphere to determine if it is IDLH?
- 6. Can the rescue personnel identify information pertinent to the rescue from entry permits, hot work permits, and MSDSs?
- 7. Has the rescue service been informed of any hazards to personnel that may arise from outside the space, such as those that may be caused by future work near the space?
- 8. If necessary, can the rescue service properly package and retrieve victims from a permit space that has a limited size opening (less than 24 inches (60.9 cm) in diameter), limited internal space, or internal obstacles or hazards?
- 9. If necessary, can the rescue service safely perform an elevated (high angle) rescue?

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- 10. Does the rescue service have a plan for each of the kinds of permit space rescue operations at the facility? Is the plan adequate for all types of rescue operations that may be needed at the facility? Teams may practice in representative spaces, or in spaces that are "worst-case" or most restrictive with respect to internal configuration, elevation, and portal size. The following characteristics of a practice space should be considered when deciding whether a space is truly representative of an actual permit space:
- (1) Internal configuration.
- (a) Open—there are no obstacles, barriers, or obstructions within the space. One example is a water tank.
- (b) Obstructed—the permit space contains some type of obstruction that a rescuer would need to maneuver around. An example would be a baffle or mixing blade. Large equipment, such as a ladder or scaffold, brought into a space for work purposes would be considered an obstruction if the positioning or size of the equipment would make rescue more difficult.
- (2) Elevation.
- (a) Elevated—a permit space where the entrance portal or opening is above grade by 4 feet or more. This type of space usually requires knowledge of high angle rescue procedures because of the difficulty in packaging and transporting a patient to the ground from the portal.
- (b) Non-elevated—a permit space with the entrance portal located less than 4 feet above grade. This type of space will allow the rescue team to transport an injured employee normally.
- (3) Portal size.
- (a) Restricted—A portal of 24 inches or less in the least dimension. Portals of this size are too small to allow a rescuer to simply enter the space while using SCBA. The portal size is also too small to allow normal spinal immobilization of an injured employee.
- (b) Unrestricted—A portal of greater than 24 inches in the least dimension. These portals allow relatively free movement into and out of the permit space.
- (4) Space access.
- (a) Horizontal-The portal is located on the side of the permit space. Use of retrieval lines could be difficult.
- (b) Vertical—The portal is located on the top of the permit space, so that rescuers must climb down, or the bottom of the permit space, so that rescuers must climb up to enter the space. Vertical portals may require knowledge of rope techniques, or special patient packaging to safely retrieve a downed entrant.

## Control of Hazardous Energy(Lockout/Tagout) §1910.147(c)(7)(i)-(iv)

- (7) Training and communication.
- (i) The employer shall provide training to ensure that the purpose and function of the energy control program are understood by employees and that the knowledge and skills required for the safe application, usage, and removal of energy controls are required by employees. The training shall include the following:
- (A) Each authorized employee shall receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.
- (B) Each affected employee shall be instructed in the purpose and use of the energy control procedure.
- (C) All other employees whose work operation are or may be in an area where energy control procedures may be utilized, shall be instructed about the procedure, and about the prohibition relating to attempts to restart or reenergize machines or equipment which are locked or tagged out.
- (ii) When tagout systems are used, employees shall also be trained in the following limitations of tags:
- (A) Tags are essentially warning devices affixed to energy isolating devices, and do not provide the physical restraint on those devices that is provided by a lock.
- (B) When a tag is attached to an energy isolating means, it is not to be removed without authorization of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated.
- (C) Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, in order to be effective.

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- (D) Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.
- (E) Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.
- (F) Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.
- (iii) Employee retraining.
- (A) Retraining shall be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment or processes that present a new hazard, or when there is a change in the energy control procedures.
- (B) Additional retraining shall also be conducted whenever a periodic inspection under paragraph (c)(6) of §1910.147 reveals, or whenever the employer has reason to believe, that there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures.
- (C) The retraining shall reestablish employee proficiency and introduce new or revised control methods and procedures, as necessary.
- (iv) The employer shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain each employee's name and dates of training.

#### §1910.147(e)(3)

(3) Lockout or tagout devices removal. Each lockout or tagout device shall be removed from each energy isolating device by the employee who applied the device. Exception paragraph (e)(3): When the authorized employee who applied the lockout or tagout device is not available to remove it, that device may be removed under the direction of the employer, provided that specific procedures and training for such removal have been developed, documented and incorporated into the employer's energy control program. The employer shall demonstrate that the specific procedure provides equivalent safety to the removal of the device by the authorized employee who applied it.

#### §1910.147(f)(2)(ii)

(ii) The on-site employer shall ensure that his/her personnel understand and comply with restrictions and prohibitions of the outside employer's energy control procedures.

#### MEDICAL SERVICES AND FIRST AID

## Medical Services and First Aid §1910.151(a)-(b)

- (a) The employer shall insure the ready availability of medical personnel for advice and consultation on matters of plant health.
- (b) In the absence of an infirmary, clinic, or hospital in near proximity to the workplace which is used for the treatment of all injured employees, a person or persons shall be adequately trained to render first aid. Adequate first aid supplies shall be readily available.

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#### **FIRE PROTECTION**

#### Fire Brigades §1910.156(c)(1)-(4)

- (c) Training and education.
- (1) The employer shall provide training and education for all fire brigade members commensurate with those duties and functions that fire brigade members are expected to perform. Such training and education shall be provided to fire brigade members before they perform fire brigade emergency activities. Fire brigade leaders and training instructors shall be provided with training and education which is more comprehensive than that provided to the general membership of the fire brigade.
- (2) The employer shall assure that training and education is conducted frequently enough to assure that each member of the fire brigade is able to perform the member's assigned duties and functions satisfactorily and in a safe manner so as not to endanger fire brigade members or other employees. All fire brigade members shall be provided with training at least annually. In addition, fire brigade members who are expected to perform interior structural fire fighting shall be provided with an education session or training at least quarterly.
- (3) The quality of the training and education program for fire brigade members shall be similar to those conducted by such fire training schools as the Maryland Fire and Rescue Institute; Iowa Fire Service Extension; West Virginia Fire Service Extension; Georgia Fire Academy, New York State Department, Fire Prevention and Control; Louisiana State University Firemen Training Program, or Washington State's Fire Service Training Commission for Vocational Education. (For example, for the oil refinery industry, with its unique hazards, the training and education program for those fire brigade members shall be similar to those conducted by Texas A & M University, Lamar University, Reno Fire School, and the Delaware State Fire School.)
- (4) The employer shall inform fire brigade members about special hazards such as storage and use of flammable liquids and gases, toxic chemicals, radioactive sources, and water reactive substances, to which they may be exposed during fire and other emergencies. The fire brigade members shall also be advised of any changes that occur in relation to the special hazards. The employer shall develop and make available for inspection by fire brigade members, written procedures that describe the actions to be taken in situations involving the special hazards and shall include these in the training and education program.

#### Paragraph 5 of Appendix A to Subpart L Fire Protection §1910.156

5. Training and education. The paragraph on training and education does not contain specific training and education requirements because the type, amount, and frequency of training and education will be as varied as are the purposes for which fire brigades are organized. However, the paragraph does require that training and education be commensurate with those functions that the fire brigade is expected to perform; i.e., those functions specified in the organizational statement. Such a performance requirement provides the necessary flexibility to design a training program which meets the needs of individual fire brigades.

At a minimum, hands-on training is required to be conducted annually for all fire brigade members. However, for those fire brigade members who are expected to perform interior structural fire fighting, some type of training or education session must be provided at least quarterly.

In addition to the required hands-on training, it is strongly recommended that fire brigade members receive other types of training and education such as: classroom instruction, review of emergency action procedures, pre-fire planning, review of special hazards in the workplace, and practice in the use of self-contained breathing apparatus.

It is not necessary for the employer to duplicate the same training or education that a fire brigade member receives as a member of a community volunteer fire department, rescue squad, or similar organization. However, such training or education must have been provided to the fire brigade member within the past year and it must be documented that the fire brigade member has received the training or education. For

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example: there is no need for a fire brigade member to receive another training class in the use of positive-pressure self-contained breathing apparatus if the fire brigade member has recently completed such training as a member of a community fire department. Instead, the fire brigade member should receive training or education covering other important equipment or duties of the fire brigade as they relate to the workplace hazards, facilities and processes.

It is generally recognized that the effectiveness of fire brigade training and education depends upon the expertise of those providing the training and education as well as the motivation of the fire brigade members. Fire brigade training instructors must receive a higher level of training and education than the fire brigade members they will be teaching. This includes being more knowledgeable about the functions to be performed by the fire brigade and the hazards involved. The instructors should be qualified to train fire brigade members and demonstrate skills in communication, methods of teaching, and motivation. It is important for instructors and fire brigade members alike to be motivated toward the goal of the fire brigade and be aware of the importance of the service that they are providing for the protection of other employees and the workplace.

It is suggested that publications from the International Fire Service Training Association, the National Fire Protection Association (NFPA-1041), the International Society of Fire Service Instructors and other fire training sources be consulted for recommended qualifications of fire brigade training instructors.

In order to be effective, fire brigades must have competent leadership and supervision. It is important for those who supervise the fire brigade during emergency situations, e.g., fire brigade chiefs, leaders, etc., to receive the necessary training and education for supervising fire brigade activities during these hazardous and stressful situations. These fire brigade members with leadership responsibilities should demonstrate skills in strategy and tactics, fire suppression and prevention techniques, leadership principles, pre-fire planning, and safety practices. It is again suggested that fire service training sources be consulted for determining the kinds of training and education which are necessary for those with fire brigade leadership responsibilities.

It is further suggested that fire brigade leaders and fire brigade instructors receive more formalized training and education on a continuing basis by attending classes provided by such training sources as universities and university fire extension services.

The following recommendations should not be considered to be all of the necessary elements of a complete comprehensive training program, but the information may be helpful as a guide in developing a fire brigade training program.

All fire brigade members should be familiar with exit facilities and their location, emergency escape routes for handicapped workers, and the workplace "emergency action plan."

In addition, fire brigade members who are expected to control and extinguish fires in the incipient stage should, at a minimum, be trained in the use of fire extinguishers, standpipes, and other fire equipment they are assigned to use. They should also be aware of first aid medical procedures and procedures for dealing with special hazards to which they may be exposed. Training and education should include both classroom instruction and actual operation of the equipment under simulated emergency conditions. Hands-on type training must be conducted at least annually but some functions should be reviewed more often.

In addition to the above training, fire brigade members who are expected to perform emergency rescue and interior structural fire fighting should, at a minimum, be familiar with the proper techniques in rescue and fire suppression procedures. Training and education should include fire protection courses, classroom training, simulated fire situations including "wet drills" and, when feasible, extinguishment of actual mock fires. Frequency of training or education must be at least quarterly, but some drills or classroom training should be conducted as often as monthly or even weekly to maintain the proficiency of fire brigade members.

There are many excellent sources of training and education that the employer may want to use in developing a training program for the workplace fire brigade. These sources include publications, seminars, and courses offered by universities.

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There are also excellent fire school courses by such facilities as Texas A and M University, Delaware State Fire School, Lamar University, and Reno Fire School, that deal with those unique hazards which may be encountered by fire brigades in the oil and chemical industry. These schools, and others, also offer excellent training courses which would be beneficial to fire brigades in other types of industries. These courses should be a continuing part of the training program, and employers are strongly encouraged to take advantage of these excellent resources.

It is also important that fire brigade members be informed about special hazards to which they may be exposed during fire and other emergencies. Such hazards as storage and use areas of flammable liquids and gases, toxic chemicals, water-reactive substances, etc., can pose difficult problems. There must be written procedures developed that describe the actions to be taken in situations involving special hazards. Fire brigade members must be trained in handling these special hazards as well as keeping abreast of any changes that occur in relation to these special hazards.

## Portable Fire Extinguishers §1910.157(g)

- (g) Training and education.
- (1) Where the employer has provided portable fire extinguishers for employee use in the workplace, the employer shall also provide an educational program to familiarize employees with the general principles of fire extinguisher use and the hazards involved with incipient stage fire fighting.
- (2) The employer shall provide the education required in paragraph (g)(1) of §1910.157 upon initial employment and at least annually thereafter.
- (3) The employer shall provide employees who have been designated to use fire fighting equipment as part of an emergency action plan with training in the use of the appropriate equipment.
- (4) The employer shall provide the training required in \$1910.157(g)(3) upon initial assignment to the designated group of employees and at least annually thereafter.

## Fixed Extinguishing Systems §1910.160(b)(10)

(10) The employer shall train employees designated to inspect, maintain, operate, or repair fixed extinguishing systems and annually review their training to keep them up-to-date in the functions they are to perform.

#### Fire Detection Systems §1910.164(c)(4)

(4) The employer shall assure that the servicing, maintenance and testing of fire detection systems, including cleaning and necessary sensitivity adjustments, are performed by a trained person knowledgeable in the operations and functions of the system.

#### MATERIALS HANDLING AND STORAGE

## Servicing of Single Piece and Multi-Piece Rim Wheels §1910.177(c)(1)-(3), (f)-(g)

- (c) Employee training.
- (1) The employer shall provide a training program to train and instruct all employees who service multi-piece rim wheels in the hazards involved in servicing multi-piece rim wheels and the safety procedures to be followed.
- (i) The employer shall assure that no employee services any multi-piece rim wheel unless the employee has been trained and instructed in correct procedures of mounting, demounting, and all related services, activi-

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ties, and correct safety precautions for the rim type being serviced, and the safe operating procedures described in paragraph (f) of this section.

- (ii) Information to be used in the training program shall include at a minimum, the data contained on the charts and the contents of this standard.
- (iii) Where an employer knows or has reason to believe that any of his employees is unable to read and understand the charts or rim manual, the employer shall assure that the employee is instructed concerning the contents of the charts and rim manual in a manner which the employee is able to understand.
- (2) The employer shall assure that each employee demonstrates and maintains his ability to service multiplece rims wheels safely, including performance of the following tasks:
- (i) Demounting of tires (including deflation);
- (ii) Inspection of wheel components;
- (iii) Mounting of tires (including inflation within a restraining device);
- (iv) Use of the restraining device;
- (v) Handling of wheels;
- (vi) Inflation of tires when a wheel is mounted on the vehicle; and
- (vii) Installation and removal of wheels.
- (3) The employer shall evaluate each employee's ability to perform these tasks and to service multipiece rim wheels safely and shall provide additional training as necessary to assure that each employee maintains his proficiency.
- (f) Safe operating procedure—multi-piece rim wheels. The employer shall establish a safe operating procedure for servicing multi-piece rim wheels and shall assure that employees are instructed in and follow that procedure. The procedure shall include at least the following elements:
- (1) Tires shall be completely deflated before demounting by removal of the valve core.
- (2) Tires shall be completely deflated by removing the valve core before a rim wheel is removed from the axle in either of the following situations:
- (i) When the tire has been driven underinflated at 80% or less of its recommended pressure, or
- (ii) When there is obvious or suspected damage to the tire or wheel components.
- (3) Rubber lubricant shall be applied to bead and rim mating surfaces during assembly of the wheel and inflation of the tire, unless the tire or wheel manufacturer recommends against it.
- (4) If a tire on a vehicle is underinflated but has more than 80% of the recommended pressure, the tire may be inflated while the rim wheel is on the vehicle provided remote control inflation equipment is used, and no employees remain in the trajectory during inflation.
- (5) Tires shall be inflated outside a restraining device only to a pressure sufficient to force the tire bead onto the rim ledge and create an airtight seal with the tire and bead.
- (6) Whenever a rim wheel is in a restraining device the employee shall not rest or lean any part of his body or equipment on or against the restraining device.
- (7) After tire inflation, the tire and wheel components shall be inspected while still within the restraining device to make sure that they are properly seated and locked. If further adjustment to the tire or wheel components is necessary, the tire shall be deflated by removal of the valve core before the adjustment is made.

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- (8) No attempt shall be made to correct the seating of side and lock rings by hammering, striking or forcing the components while the tire is pressurized.
- (9) Cracked, broken, bent or otherwise damaged rim components shall not be reworked, welded, brazed, or otherwise heated.
- (10) Whenever multi-piece rim wheels are being handled, employees shall stay out of the trajectory unless the employer can demonstrate that performance of the servicing makes the employee's presence in the trajectory necessary.
- (11) No heat shall be applied to a multi-piece wheel or wheel component.
- (g) Safe operating procedure—single piece rim wheels. The employer shall establish a safe operating procedure for servicing single piece rim wheels and shall assure that employees are instructed in and follow that procedure. The procedure shall include at least the following elements:
- (1) Tires shall be completely deflated by removal of the valve core before demounting.
- (2) Mounting and demounting of the tire shall be done only from the narrow ledge side of the wheel. Care shall be taken to avoid damaging the tire beads while mounting tires on wheels. Tires shall be mounted only on compatible wheels of matching bead diameter and width.
- (3) Nonflammable rubber lubricant shall be applied to bead and wheel mating surfaces before assembly of the rim wheel, unless the tire or wheel manufacturer recommends against the use of any rubber lubricant.
- (4) If a tire changing machine is used, the tire shall be inflated only to the minimum pressure necessary to force the tire bead onto the rim ledge while on the tire changing machine.
- (5) If a bead expander is used, it shall be removed before the valve core is installed and as soon as the rim wheel becomes airtight (the tire bead slips onto the bead seat).
- (6) Tires may be inflated only when contained within a restraining device, positioned behind a barrier or bolted on the vehicle with the lug nuts fully tightened.
- (7) Tires shall not be inflated when any flat, solid surface is in the trajectory and within one foot of the sidewall.
- (8) Employees shall stay out of the trajectory when inflating a tire.
- (9) Tires shall not be inflated to more than the inflation pressure stamped in the sidewall unless a higher pressure is recommended by the manufacturer.
- (10) Tires shall not be inflated above the maximum pressure recommended by the manufacturer to seat the tire bead firmly against the rim flange.
- (11) No heat shall be applied to a single piece wheel.
- (12) Cracked, broken, bent, or otherwise damaged wheels shall not be reworked, welded, brazed, or otherwise heated.

## Powered Industrial Trucks §1910.178(I)

- (I) Operator training.
- (1) Safe operation. (i) The employer shall ensure that each powered industrial truck operator is competent to operate a powered industrial truck safely, as demonstrated by the successful completion of the training and evaluation specified in this paragraph (l).
- (ii) Prior to permitting an employee to operate a powered industrial truck (except for training purposes), the employer shall ensure that each operator has successfully completed the training required by this paragraph (I), except as permitted by paragraph (I)(5).

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- (2) Training program implementation. (i) Trainees may operate a powered industrial truck only:
- (A) Under the direct supervision of persons who have the knowledge, training, and experience to train operators and evaluate their competence; and
- (B) Where such operation does not endanger the trainee or other employees.
- (ii) Training shall consist of a combination of formal instruction (e.g., lecture, discussion, interactive computer learning, video tape, written material), practical training (demonstrations performed by the trainer and practical exercises performed by the trainee), and evaluation of the operator's performance in the workplace.
- (iii) All operator training and evaluation shall be conducted by persons who have the knowledge, training, and experience to train powered industrial truck operators and evaluate their competence.
- (3) Training program content. Powered industrial truck operators shall receive initial training in the following topics, except in topics which the employer can demonstrate are not applicable to safe operation of the truck in the employer's workplace.
- (i) Truck-related topics:
- (A) Operating instructions, warnings, and precautions for the types of truck the operator will be authorized to operate;
- (B) Differences between the truck and the automobile;
- (C) Truck controls and instrumentation: where they are located, what they do, and how they work;
- (D) Engine or motor operation;
- (E) Steering and maneuvering;
- (F) Visibility (including restrictions due to loading);
- (G) Fork and attachment adaptation, operation, and use limitations;
- (H) Vehicle capacity;
- Vehicle stability;
- (J) Any vehicle inspection and maintenance that the operator will be required to perform;
- (K) Refueling and/or charging and recharging of batteries;
- (L) Operating limitations;
- (M) Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicle that the employee is being trained to operate.
- (ii) Workplace-related topics:
- (A) Surface conditions where the vehicle will be operated;
- (B) Composition of loads to be carried and load stability;
- (C) Load manipulation, stacking, and unstacking;
- (D) Pedestrian traffic in areas where the vehicle will be operated;
- (E) Narrow aisles and other restricted places where the vehicle will be operated;
- (F) Hazardous (classified) locations where the vehicle will be operated;
- (G) Ramps and other sloped surfaces that could affect the vehicle's stability;
- (H) Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust;

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- (I) Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.
- (iii) The requirements of this section.
- (4) Refresher training and evaluation. (i) Refresher training, including an evaluation of the effectiveness of that training, shall be conducted as required by paragraph (I)(4)(ii) to ensure that the operator has the knowledge and skills needed to operate the powered industrial truck safely.
- (ii) Refresher training in relevant topics shall be provided to the operator when:
- (A) The operator has been observed to operate the vehicle in an unsafe manner;
- (B) The operator has been involved in an accident or near-miss incident;
- (C) The operator has received an evaluation that reveals that the operator is not operating the truck safely;
- (D) The operator is assigned to drive a different type of truck; or
- (E) A condition in the workplace changes in a manner that could affect safe operation of the truck.
- (iii) An evaluation of each powered industrial truck operator's performance shall be conducted at least once every three years.
- (5) Avoidance of duplicative training. If an operator has previously received training in a topic specified in paragraph (I)(3) of this section, and such training is appropriate to the truck and working conditions encountered, additional training in that topic is not required if the operator has been evaluated and found competent to operate the truck safely.
- (6) Certification. The employer shall certify that each operator has been trained and evaluated as required by this paragraph (I). The certification shall include the name of the operator, the date of the training, the date of the evaluation, and the identity of the person(s) performing the training or evaluation.
- (7) Dates. The employer shall ensure that operators of powered industrial trucks are trained, as appropriate, by the dates shown in the following table.

If the employee was hired:	The initial training and evaluation of that employee must be completed:
Before December 1, 1999 After December 1, 1999	By December 1, 1999. Before the employee is assigned to operate a powered industrial truck.

(8) Appendix A to this section provides non-mandatory guidance to assist employers in implementing this paragraph (I). This appendix does not add to, alter, or reduce the requirements of this section.

## Appendix A—Stability of Powered Industrial Trucks (Non-mandatory Appendix to Paragraph (I) of this Section)

A-1. Definitions.

The following definitions help to explain the principle of stability:

Center of gravity is the point on an object at which all of the object's weight is concentrated. For symmetrical loads, the center of gravity is at the middle of the load.

Counterweight is the weight that is built into the truck's basic structure and is used to offset the load's weight and to maximize the vehicle's resistance to tipping over.

Fulcrum is the truck's axis of rotation when it tips over.

Grade is the slope of a surface, which is usually measured as the number of feet of rise or fall over a hundred foot horizontal distance (the slope is expressed as a percent).

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#### TRAINING REQUIREMENTS

#### OSHA COMPLIANCE MANUAL

Lateral stability is a truck's resistance to overturning sideways.

Line of action is an imaginary vertical line through an object's center of gravity.

Load center is the horizontal distance from the load's edge (or the fork's or other attachment's vertical face) to the line of action through the load's center of gravity.

Longitudinal stability is the truck's resistance to overturning forward or rearward.

Moment is the product of the object's weight times the distance from a fixed point (usually the fulcrum). In the case of a powered industrial truck, the distance is measured from the point at which the truck will tip over to the object's line of action. The distance is always measured perpendicular to the line of action.

Track is the distance between the wheels on the same axle of the truck.

Wheelbase is the distance between the centerline of the vehicle's front and rear wheels.

#### A-2. General.

- A-2.1. Determining the stability of a powered industrial truck is simple once a few basic principles are understood. There are many factors that contribute to a vehicle's stability: the vehicle's wheelbase, track, and height; the load's weight distribution; and the vehicle's counterweight location (if the vehicle is so equipped).
- A-2.2. The "stability triangle," used in most stability discussions, demonstrates stability simply.
- A-3. Basic Principles.
- A-3.1. Whether an object is stable depends on the object's moment at one end of a system being greater than, equal to, or smaller than the object's moment at the system's other end. This principle can be seen in the way a see-saw or teeter-totter works: that is, if the product of the load and distance from the fulcrum (moment) is equal to the moment at the device's other end, the device is balanced and it will not move. However, if there is a greater moment at one end of the device, the device will try to move downward at the end with the greater moment.
- A-3.2. The longitudinal stability of a counterbalanced powered industrial truck depends on the vehicle's moment and the load's moment. In other words, if the mathematic product of the load moment (the distance from the front wheels, the approximate point at which the vehicle would tip forward) to the load's center of gravity times the load's weight is less than the vehicle's moment, the system is balanced and will not tip forward. However, if the load's moment is greater than the vehicle's moment, the greater load-moment will force the truck to tip forward.
- A-4. The Stability Triangle.
- A-4.1. Almost all counterbalanced powered industrial trucks have a three-point suspension system, that is, the vehicle is supported at three points. This is true even if the vehicle has four wheels. The truck's steer axle is attached to the truck by a pivot pin in the axle's center. When the points are connected with imaginary lines, this three-point support forms a triangle called the stability triangle. Figure 1 depicts the stability triangle.
- A-4.2. When the vehicle's line of action, or load center, falls within the stability triangle, the vehicle is stable and will not tip over. However, when the vehicle's line of action or the vehicle/ load combination falls outside the stability triangle, the vehicle is unstable and may tip over. (See Figure 2.)

#### §1910.1029(k)(1)-(2)

- (1) Training program. (i) The employer shall institute a training program for employees in the regulated area and shall assure their participation.
- (ii) The training program shall be provided as of January 27, 1977 for employees who are employed in the regulated area at that time or at the time of initial assignment to a regulated area.
- (iii) The training program shall be provided at least annually for all employees who are employed in the regulated area, except that training regarding the occupational safety and health hazards associated with exposure to coke oven emissions and the purpose, proper use, and limitations of respiratory protective devices shall be provided at least quarterly until January 20, 1978.
- (iv) The training program shall include informing each employee of:
- (a) The information contained in the substance information sheet for coke oven emissions (Appendix A);
- (b) The purpose, proper use, and limitations of respiratory protective devices required in accordance with paragraph (g) of this section;
- (c) The purpose for and a description of the medical surveillance program required by paragraph (j) of this section including information on the occupational safety and health hazards associated with exposure to coke oven emissions;
- (d) A review of all written procedures and schedules required under paragraph (f) of this section; and
- (e) A review of this standard.
- (2) Access to training materials. (i) The employer shall make a copy of this standard and its appendixes readily available to all employees who are employed in the regulated area.
- (ii) The employer shall provide upon request all materials relating to the employee information and training program to the Secretary and the Director.

#### Bloodborne Pathogens §1910.1030(d)(2)(xiv)(B)

(B) The employer shall ensure that information regarding equipment contaminated with blood or other potentially infectious materials is conveyed to all affected employees, the servicing representative, and/or the manufacturer as appropriate, prior to handling servicing, or shipping so that appropriate precautions will be taken.

#### §1910.1030(e)(2)(ii)(K) and (M)

- (K) All spills must be immediately contained and cleaned up by appropriate professional staff or others properly trained and equipped to work with potentially concentrated infectious materials.
- (M) A biosafety manual must be prepared or adopted and periodically reviewed and updated at least annually or more often if necessary. Personnel must be advised of the potential hazards, shall be required to read instructions on practices and procedures, and shall be required to follow them.

#### §1910.1030(e)(5)

(5) Training Requirements. Additional training requirements for employees in HIV and HBV research laboratories and HIV and HBV production facilities are specified in paragraph (g)(2)(ix).

#### §1910.1030(g)(2)(i)-(ix)

- (2) Information and Training. (i) Employers shall ensure that all employees with occupational exposure to bloodborne pathogens, Hepatitis B or other potentially infectious materials participate in a training program which must be provided at no cost to the employee and during working hours.
- (ii) Training shall be provided as follows:
- (A) At the time of initial assignment to tasks where occupations exposure may take place;
- (B) Within 90 days after the effective date of the standard;
- (C) At least annually thereafter;
- (iii) For employees who have received training on bloodborne pathogens in the year preceding the effective date of the standard, only training with respect to the provisions of the standard which were not included need be provided.
- (iv) Annual training for all employees shall be provided within one year of their previous training.
- (v) Employers shall provide additional training when changes such as modification of tasks or procedures or institution of new tasks or procedures affect the employee's occupational exposure. The additional training may be limited to addressing the new exposures created.
- (vi) Material appropriate in content and vocabulary to educational level, literacy, and language of employees shall be used.
- (vii) The training program shall contain at a minimum the following elements:
- (A) An accessible copy of the regulatory text of the standard and an explanation of its contents;
- (B) A general explanation of the epidemiology and symptoms of bloodborne diseases;
- (C) An explanation of the modes of transmission of bloodborne pathogens;
- (D) An explanation of the employer's exposure control plan and the means by which the employee can obtain a copy of the written plan;
- (E) An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials;
- (F) An explanation of the use and limitations of methods that will prevent or reduce exposure including appropriate engineering controls, work practices, and personal protective equipment;
- (G) Information on the types, proper use, location, removal, handling, decontamination and disposal of personal protective equipment;
- (H) An explanation of the basis for selection of personal protective equipment;
- (I) Information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge;
- (J) Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials;
- (K) An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available;
- (L) Information on the post-exposure evaluation and follow-up that the employer is required to provide for the employee following an exposure incident;
- (M) An explanation of the signs and labels and/or color coding required by paragraph (g)(1); and
- (N) An opportunity for interactive questions and answers with the person conducting the training session.

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- (iii) Employee training shall include at least:
- (A) Methods and observations that may be used to detect the presence or release of EtO in the work area (such as monitoring conducted by the employer, continuous monitoring devices, etc.);
- (B) The physical and health hazards of EtO;
- (C) The measures employees can take to protect themselves from hazards associated with EtO exposure, including specific procedures the employer has implemented to protect employees from exposure to EtO, such as work practices, emergency procedures, and personal protective equipment to be used; and
- (D) The details of the hazard communication program developed by the employer, including an explanation of the labeling system and how employees can obtain and use the appropriate hazard information.

#### Formaldehyde §1910.1048(g)(2)(i)

(2) Respirator program. (i) The employer must implement a respiratory protection program in accordance with 29 CFR 1910.134 (b) through (d) except (d)(1)(iii), (d)(3)(iii)(b)(1), and (2)), and (f) through (m). [Training in the proper use of respirators.]

#### §1910.1048(n)(1)-(4)

- (n) Employee information and training. (1) Participation. The employer shall assure that all employees who are assigned to workplaces where there is exposure to formaldehyde participate in a training program, except that where the employer can show, using objective data, that employees are not exposed to formaldehyde at or above 0.1 ppm, the employer is not required to provide training.
- (2) Frequency. Employers shall provide such information and training to employees at the time of initial assignment, and whenever a new exposure to formaldehyde is introduced into their work area. The training shall be repeated at least annually.
- (3) Training program. The training program shall be conducted in a manner which the employee is able to understand and shall include:
- (i) A discussion of the contents of this regulation and the contents of the Material Safety Data Sheet.
- (ii) The purpose for and a description of the medical surveillance program required by this standard, including:
- (A) A description of the potential health hazards associated with exposure to formaldehyde and a description of the signs and symptoms of exposure to formaldehyde.
- (B) Instructions to immediately report to the employer the development of any adverse signs or symptoms that the employee suspects is attributable to formaldehyde exposure.
- (iii) Description of operations in the work area where formaldehyde is present and an explanation of the safe work practices appropriate for limiting exposure to formaldehyde in each job;
- (iv) The purpose for, proper use of, and limitations of personal protective clothing and equipment;
- (v) Instructions for the handling of spills, emergencies, and clean-up procedures;
- (vi) An explanation of the importance of engineering and work practice controls for employee protection and any necessary instruction in the use of these controls; and
- (vii) A review of emergency procedures including the specific duties or assignments of each employee in the event of an emergency.

- (6) Training must be updated to ensure essential employee proficiency when there are modifications to tasks or procedures, or new tasks or procedures are instituted which increase employee exposure or where those exposures exceed or can reasonably be expected to exceed the action level.
- (7) An employer whose employees are exposed to MC at a multi-employer worksite must notify the other employers with work operations at that site, according to requirements in the Hazard Communication Standard.
- (8) When requested, employers must provide to OSHA all materials relating to employee information and training.

## Ionizing Radiation §1910.1096(f)(3)(viii)

(viii) All employees whose work may necessitate their presence in an area covered by the signal shall be made familiar with the actual sound of the signal—preferably as it sounds at their work location. Before placing the system into operation, all employees normally working in the area shall be made acquainted with the signal by actual demonstration at their work locations.

#### §1910.1096(i)(2)

(2) All individuals working in or frequenting any portion of a radiation area shall be informed of the occurrence of radioactive materials or of radiation in such portions of the radiation area; shall be instructed in the safety problems associated with exposure to such materials or radiation and in precautions or devices to minimize exposure; shall be instructed in the applicable provisions of §1910.1096 for the protection of employees from exposure to radiation or radioactive materials; and shall be advised of reports of radiation exposure which employees may request pursuant to the regulations in this section.

## Hazard Communication §1910.1200(h)(1)-(3)

- (h) Employee information and training. (1) Employers shall provide employees with effective information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new physical or health hazard the employees have not previously been trained about is introduced into their work area. Information and training may be designed to cover categories of hazards (e.g., flammability, carcinogenicity) or specific chemicals. Chemical-specific information must always be available through labels and material safety data sheets.
- (2) Information. Employees shall be informed of:
- (i) The requirements of this section;
- (ii) Any operations in their work area where hazardous chemicals are present; and,
- (iii) The location and availability of the written hazard communication program, including the required list(s) of hazardous chemicals, and material safety data sheets required by this section.
- (3) Training. Employee training shall include at least:
- (i) Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);
- (ii) The physical and health hazards of the chemicals in the work area;

- (iii) The measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used; and,
- (iv) The details of the hazard communication program developed by the employer, including an explanation of the labeling system and the material safety data sheet, and how employees can obtain and use the appropriate hazard information.

## Occupational Exposure to Hazardous Chemicals in Laboratories §1910.1450(f)(1)-(4)

- (f) Employee information and training. (1) The employer shall provide employees with information and training to ensure that they are apprised of the hazards of chemicals present in their work area.
- (2) Such information shall be provided at the time of an employee's initial assignment to a work area where hazardous chemicals are present and prior to assignments involving new exposure situations. The frequency of refresher information and training shall be determined by the employer.
- (3) Information. Employees shall be informed of:
- (i) The contents of this standard and its appendices which shall be made available to employees;
- (ii) The location and availability of the employer's Chemical Hygiene Plan;
- (iii) The permissible exposure limits for OSHA regulated substances or recommended exposure limits for other hazardous chemicals where there is no applicable OSHA standard;
- (iv) Signs and symptoms associated with exposures to hazardous chemicals used in the laboratory; and
- (v) The location and availability of known reference materials on the hazards, safe handling, storage and disposal of hazardous chemicals found in the laboratory including, but not limited to, Material Safety Data Sheets received from the chemical supplier.
- (4) Training. (i) Employee training shall include:
- (A) Methods and observations that may be used to detect the presence or release of a hazardous chemical (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);
- (B) The physical and health hazards of chemicals in the work area; and
- (C) The measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used.
- (ii) The employee shall be trained on the applicable details of the employer's written Chemical Hygiene Plan.

# SECTION III COMPETITIVE ADVANTAGES

## **Competitive Advantages**

- 1. CES has the ability to teach courses in Spanish. Many companies today have a work force that contains associates whose first language is Spanish. OSHA requires that all employees be able to understand the training that is given to them. No other facility in Houston offers as wide a range of courses in the Spanish language.
- 2. CES has the ability to train employees on weekends and nights. This will allow the customer to have more control over when their employees may be trained.
- 3. CES has the ability to train employees on or off site. CES can train employees off site at a customer location, or in the fully equipped training room at the CES home office.
- 4. CES uses certified instructors that combine classroom lectures with practical exercises to ensure your employees grasp the concepts of the training.
- 5. CES will send reminders out to companies to ensure their training is updated and does not expire.
- 6. CES will keep records on file of your employees training to protect you against lost records during an OSHA inspection.

#### Reasons Why You Should Train Your Workforce

- \*It's the law. Reduce your risk of paying high fines for OSHA non-compliance.
- \*Training can help reduce reportable and loss time accident rates which will help improve EMR ratings with your workers compensation carrier.
- \*Because medical and injury related costs can lower your bottom line. One accident can cost more than training your entire workforce.
- \*Training will help reduce exposure to liability from work related injuries.
- \*Most importantly, protect your company's most valuable asset. Your employees and associates that handle your every day operations.
- \*Train your associates at CES Environmental Services, Inc.

# SECTION IV SAMPLE CERTIFICATE

# SECTION III SAMPLE CERTIFICATE

# SECTION V PRICING

# CES ENVIRONMENTAL SERVICES COURSE PRICING

## All Courses are Available in English and Spanish

COURSES	(<5)	(B/T 5&10)	(10 & UP)	
Basic CPR First Aid	\$65/\$650 min	\$65/\$650 min	\$65	
Bloodborne Pathogens	\$40/\$120 min	\$35	\$30	
Confined Space Entry	\$75/\$300 min	\$60	\$45	
Fire Safety	\$50/\$200 min	\$40	\$30	
Forklift Training				
Hazardous Communications	\$75/\$300 min	\$60	\$45	
Hazwoper Refresher Course	\$165/\$800 min	\$140/\$800 min	\$130	
Hazwoper Level I- 8 Hour	\$165/\$800 min	\$140/\$800 min	\$130	
Hazwoper Level II- 24 Hour Course	\$400/\$2200 min	\$375/\$2200 min	\$350	
Hazwoper Level III- 40 Hour Course.	\$550/\$4000min	\$525/\$4000 min	\$500	
Hearing Conservation	\$50/\$200 min	\$40	\$25	
Lock-Out-Tag-Out				
Personal Protective Equipment	\$75/\$30 min	\$60	\$45	
Respiratory Protection				
Temperature Stress				
A. Pulmonary Function(10 Person Min)\$20/each				
B. Respirator Fit Test (10 Person Min)				
C. Audiometric Test (10 Person Min)\$20/6				
MEQ (Required for A, B, & C)				
Set up fee (Required A, B, & C)				

#### Notes:

- -CES can call you as courses begin to fill with other CES customers. Otherwise, minimums will apply.
- -Other courses may be available upon request.
- -Breakfast and lunch are provided for students in the Hazwoper 24 and 40 hour classes.
- -All training can be provided on weekends and nights.

CES Environmental Services, Inc. 4904 Griggs Rd. Houston, TX 77021 Phone (713) 676-1460 Fax (713) 676-1676 E-Mail cesenvironmental@yahoo.com

# GUIDELINES

FOR THE

# CLASSIFICATION

AND

# CODING

O F

# INDUSTRIAL

AND

# HAZARDOUS WASTES



# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

WASTE PERMITS DIVISION

RG-022 Revised 2/05

# GUIDELINES FOR THE CLASSIFICATION AND CODING OF INDUSTRIAL AND HAZARDOUS WASTES

# THIS IS A GUIDANCE DOCUMENT AND SHOULD NOT BE INTERPRETED AS A REPLACEMENT TO THE RULES.

The rules for classifying and coding industrial wastes and hazardous wastes may be found in 30 Texas Administrative Code (TAC) Sections (§§) 335.501-.521 (Subchapter R).

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RG-022 Texas Commission on Environmental Quality

Revised February 2005



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Published and distributed by the Texas Commission on Environmental Quality PO Box 13087 Austin TX 78711-3087

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## Introduction

#### Who Should Read This Booklet

The main purpose of this guidance document is to help generators of industrial and hazardous waste follow state and federal requirements on

- classifying and coding these wastes,
- keeping proper records, and
- notifying the Texas Commission on Environmental Quality (TCEQ) about the wastes, when required.

Specifically, this document gives guidance on the regulations in Title 30 of the Texas Administrative Code (TAC), Chapter 335, Subchapter R (Waste Classification). The rules in Subchapter R apply both to wastes generated in Texas and to those generated outside the state and sent to Texas for treatment, storage, and/or disposal. Correct and timely compliance with the regulations on industrial and hazardous wastes helps to protect the state's environment and safeguard the health of Texas citizens.

#### Wasie Classes

Figure 1 shows the main categories of hazardous and nonhazardous waste. The following paragraphs give brief descriptions of these categories—important terms that will be used throughout this booklet. (For more details, see the classification checklist in Chapter 3 and the definitions in Chapter 8.)

#### Hazardous Waste

A hazardous waste is one that is listed as such by the U.S. Environmental Protection Agency (EPA) or that exhibits one or more hazardous characteristics (also as specified by the EPA). Hazardous wastes are threatening to human health and the environment.

#### Listed Hazardous Waste

EPA lists over 400 wastes as hazardous. For more information see Part I-A of the checklist in Chapter 3.

#### Characteristically Hazardous Waste

Waste that displays one or more of four hazardous characteristics:

- *ignitability* (easily flammable—for example, solvents);
- reactivity (capable of rapid chemical reaction—for example, peroxides);
- corrosivity (highly acidic or alkaline, able to dissolve metals or burn the skin-for example, hydrochloric acid or sodium hydroxide); and
- toxicity (a waste that can release toxic constituents into the environment—for example, lead-based paint).

For more information on hazardous characteristics, see Part I-B of the checklist in Chapter 3.

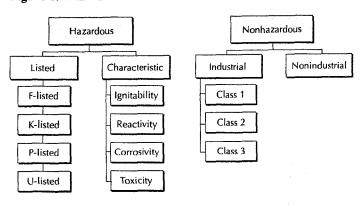
#### Nonhazardous Waste

Any industrial waste that is not listed as hazardous and does not have hazardous characteristics. (Class 1 nonhazardous industrial waste can include certain levels of constituents and specified properties that, at higher levels, might otherwise render the waste hazardous—see Part II of the checklist in Chapter 3.)

#### Industrial versus Nonindustrial Wastes

Industrial wastes result from (or are incidental to) operations of industry, manufacturing, mining, or agriculture—for example, wastes from power generation plants, manufacturing facilities, and laboratories serving an industry. Nonindustrial wastes, by contrast, come from sources such as schools, hospitals, churches, dry cleaners, most service stations, and laboratories serving the public.

Figure 1. Hazardous and Nonhazardous Wastes



#### Nonhazardous Industrial Waste

In this grouping, *Class 1* waste is considered potentially threatening to human health and the environment if not properly managed, because of the constituents and properties this class can include. Therefore, there are special handling requirements for Class 1 wastes. An example is water contaminated with ethylene glycol.

Examples of Class 2 wastes include waste-activated sludge from biological wastewater treatment. Class 3 includes materials such as demolition debris—for example, bricks—that are insoluble, do not react with other materials, and do not decompose. Class 2 and 3 wastes are often accepted by local landfills. However, a Class 2 or 3 designation does not mean that the waste is incapable of causing harm in every management (or mismanagement) situation.

#### What This Booklet Explains How to Do

After you have worked through this booklet (and that includes consulting the rules referred to in it), you will be able to accomplish the following tasks:

- Identify which wastes you must classify, code, and notify the TCEQ about. Chapter 2 introduces a key concept—"waste streams"— that helps you decide these points.
- Classify your waste. Chapter 3 gives you a step-by-step approach for putting your waste into one of four categories: either hazardous waste or nonhazardous industrial waste Classes 1, 2, or 3.
- Know what kind of information (either from process knowledge about your facility's operation or from analytical testing) that you must document and keep on file (Chapter 4).
- Understand the 8-character Texas waste code. Chapter 5 explains the components of the waste code:
  - ▼ 4-character sequence number (may be a number, letters, or a combination; generally, identifies a particular waste or where it came from);
  - ▼ 3-digit form code; and
  - ▼ 1-character classification (from Chapter 3).
- Know how to notify TCEQ about your wastes and which TCEQ form to use (Chapter 6).

#### Some Things This Booklet Does NOT Cover

Nonhazardous Nonindustrial Waste. The rules in 30 TAC Chapter 335, do NOT apply to nonhazardous waste generated by nonindustrial facilities.

#### Selective Coverage of Chapter 335

Also, please be aware that this guidance document only covers 2 subchapters (A and R) of 30 TAC Chapter 335, which contains 18 subchapters in all. This booklet covers only classification and coding, documentation you must create and keep on file, and notifications you must send to TCEQ (and the forms to use for that purpose). This booklet is not a substitute for the complete rules themselves. (You can obtain your own copies of the full, official state rules from the TCEQ's publications unit. Ways to contact this unit are listed under the heading "TCEQ and EPA Forms" in Chapter 6.)

#### Classification versus Risk Reduction

There is an important distinction between (1) classifying your wastes; and (2) meeting the *risk reduction standards*, which are set forth in 30 TAC Chapter 335, Subchapter S. Here are the most common situations where the risk reduction standards apply:

- a facility that handled industrial wastes is being closed;
- a site where unauthorized discharge of wastes occurred is being cleaned up.

If you are involved in a situation like these, you need to inform yourself about the risk reduction standards. The guidance document you are now reading does not cover this topic. (Again, you can obtain a copy of Subchapter S, and other information, from the TCEQ publications unit—see the heading "TCEQ and EPA Forms" in Chapter 6.)

### Who Are "You" in This Booklet?

Throughout this guidance document, generators of industrial and/or hazardous wastes will be referred to as "generator," "generators," or—for a more direct way of writing—simply as "you." Also, 30 TAC Chapter 335, Subchapter R, will be referred to as "these rules" or "the rules." Finally, "this booklet," "this document," or "this guidance document" refers to Guidelines for the Classification and Coding of Industrial and Hazardous Wastes, TCEQ Publication Number RG-022—the booklet you are now reading.

# "Waste Streams" – A Key Concept

When the preceding chapter mentioned that this booklet will instruct you on how to classify, code and report about wastes, a question that naturally might have come to your mind is "How do I know which wastes must be classified, coded, and reported?" (The general answer is that you must perform these processes on all hazardous wastes and nonhazardous industrial wastes.)

In discussing this point, federal regulators use the term *waste stream*, in both of the following senses: First, it can mean the total flow of all waste from homes, businesses, and industry. Second, within this total flow, smaller "waste streams" can be distinguished—for example, "the residential waste stream," "the recyclable waste stream," and others.

Similarly, within the overall flow of waste from your ordinary operations or processes, a number of particular waste streams can be identified. For example if your process ordinarily produces a hazardous acidic waste, and at some point you neutralize that waste, these are two separately identifiable "waste streams."

Each waste stream—the acidic waste and the neutralized waste, in this example—must be identified by an 8-character Texas waste code, which identifies the waste stream as a separate entity and gives information about its origin, general nature, and hazardous status. (Chapters 3 through 5 go into the details of how this 8-character code is arrived at.)

Table 2-1 gives examples of some situations in which the waste flow from an operation or process can produce more than one waste stream, each of which must be classified and coded; and an example of a situation that does *not* result in more than one waste stream. For specific guidance on specific waste streams, contact the TCEQ.

In general, whenever you have or suspect the existence of an additional, distinct waste stream, you must determine its classification (Chapter 3), arrive at a Texas waste code for it (Chapter 5), and in most cases notify TCEQ about the additional waste stream (Chapter 6—which also gives details about some of the exceptions to the requirements for notification: for example, a slight change or variation in a waste stream's composition may not require notification.)

Table 2-1. An Operation's Overall Waste Flow Can Produce Multiple "Waste Streams"

IF you have WASTES that are	AND they come from PROCESSES that are	THEN the wastes are considered
different	similar	different "waste streams"—for example, a sludge removed from an electroplating vat is not the same waste stream as a liquid removed from an electroplating vat.
similar	different	different "waste streams"—for example, methylene chloride used in a paint- stripping operation is not the same waste stream as methylene chloride used in laboratory analysis.
similar	similar	the same "waste stream"—for example, a site may have several paint booths that perform the same activities with the same materials, and each produces drop cloth waste. These drop cloth wastes, from the various locations at this site, could be considered one waste stream as long as they were all classified the same (for more on classification, see Chapter 3).
altered physically or chemically by treatment	N/A	different "waste streams"—for example, if a sludge is dewatered, it may produce two new waste streams, one a solid and the other a liquid.

# Waste Classification Checklist

This chapter provides a checklist to help you classify your hazardous waste and your nonhazardous industrial waste. For an overview of these types of waste, refer back to Figure 1 in Chapter 1; for more details, refer to 30 TAC Chapter 335 Subchapter R Sections 335.501–508. (You can obtain your own copy of state rules from the TCEQ publications unit; ways to contact this unit are listed under the heading "TCEQ and EPA Forms" in Chapter 6.)

#### Process Knowledge vs. Analytical Testing

In determining a waste stream's classification, a generator may use *process knowledge* and/or *analytical testing*. Process knowledge is the owner or operator's knowledge about how the facility operates, how a waste was produced and handled, and other information based on operating experience. Analytical testing is information about a waste from laboratory analysis.

In the checklist, the nonhazardous classification criteria that could involve analytical testing have been marked with an \*. This marking **does not** mean that analytical testing is the only way to evaluate these criteria. If sufficient process knowledge is available, little or no analysis may need to be performed. You should evaluate whether you have enough process knowledge about the waste to classify it or whether analytical testing is needed.

#### **Documentation**

Regardless of whether you rely on process knowledge or opt for analytical testing, you must fully document the information used in making your waste classification. A completed checklist does not qualify as full documentation. Documentation should be in a written and/ or electronically stored format that is reasonably accessible and easily reproducible. For details on documentation requirements, see Chapter 4.

## Part I. Hazardous Waste Determination

All waste generators should work through Part I of this checklist. In this part you will determine whether your waste is hazardous because (a) it is listed as hazardous by EPA or (b) it displays characteristics that EPA says make it hazardous.

In federal regulatory language, the first step in classifying your waste is called "making a hazardous waste determination." The definition of hazardous waste, based upon the Resource Conservation and Recovery Act (RCRA), is found in Title 40 of the Code of Federal Regulations (CFR), Part 261.

This TCEQ guidance document reflects the hazardous waste definition in the Federal Register as of July 1, 2004. If that definition changes, the generator is still responsible for making an accurate hazardous waste determination in accordance with the latest regulations—instead of with what is printed in this guidance document.

IF the answer to any of the questions in Part I is "Yes," THEN the waste is hazardous.

### Possible Exclusions from Hazardous Classification

Under certain conditions, some types of wastes are excluded from being considered hazardous (40 CFR Sections 261.3-4). Generators may wish to review these exclusions before working through Part I of this checklist.

#### Part I-A. Listed Hazardous Waste Determination

The EPA lists some 400 hazardous wastes.

#### **Information to Help You Make This Determination**

Descriptions of listed waste are found in 40 CFR Part 261, Subpart D, Sections 261.31–33. These wastes are often referred to as follows:

- "F" listed waste (waste from nonspecific sources, Section 261.31);
- "K" listed waste (wastes from specific sources, Section 261.32);
- "P" listed waste (unused acutely hazardous off-specification materials as well as container residues and spill residues of these materials, Section 261.33);
- "U" listed waste (unused toxic hazardous off-specification materials as well as container residues and spill residues of these materials, Section 261.33).

QUESTION: Is the waste a listed hazardous wa	te, or is it mixed with or	derived from one?	□ Yes □ No
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## Part I-B. Characteristic Hazardous Waste Determination

Wastes may be hazardous if they display any of four characteristics: ignitability, corrosiveness, reactivity, or toxicity.

## Information to Help You Make This Determination

#### Ignitability

Wastes that are hazardous because they may ignite include the following:

- Liquid wastes (other than those aqueous waste containing less than 24 percent alcohol by volume) that have a flash point less than 60°C (140°F). (The test method is the Pensky-Martens closed cup tester, using the test method specified in ASTM Standard D-93-79 or D-93-80, or a Setaflash closed cup tester, using the test method specified in ASTM Standard D-3278-78.)
- Nonliquid wastes that, under standard temperature and pressure, are capable of causing fire through friction, absorption of moisture, or spontaneous chemical changes and, when ignited, burn so vigorously and persistently that they create a hazard.
- Wastes that meet the definition of an ignitable compressed gas (see 49 CFR Section 173.300).
- Wastes that meet the definition of an oxidizer (see 49 CFR Section 173.151).

QUESTION: Is the waste ignitable according to 40 CFR Section 261.21?		
billion and response completely to the report of a relative for a contract of the contract of		*

#### Corrosiveness

Wastes that are hazardous because they are corrosive include the following:

- aqueous wastes with a pH of 2 units or below or of 12.5 units or above;
- liquid wastes that corrode steel at a rate greater than 6.35 mm (0.250 inches) per year.

Question: Is the waste corrosive according to 40 CFR Section 261.22?

#### Reactivity

A waste is considered reactive if it meets any of the following conditions:

- It is capable of detonation or explosive decomposition or reaction
  - ▼ at standard temperature and pressure,
  - ▼ if subjected to a strong ignition source, or
  - ▼ if heated under confinement.
- When mixed with water, it is
  - ▼ potentially explosive,
  - ▼ reacts violently, or
  - ▼ generates toxic gases or vapors.
- If a cyanide or sulfide-bearing waste is exposed to pH conditions between 2 and 12.5, it can generate enough toxic gases, vapors, or fumes to present a danger to human health or the environment. Generally, if a waste generates 250 ppm or more of reactive cyanides or 500 ppm or more of reactive sulfides, it is considered a reactive waste. (It should be noted that these levels of reactive compounds are just guidance. Each waste must be evaluated for reactivity on a case-by-case basis).
- It is normally unstable and readily undergoes violent change without detonating.
- It is a forbidden explosive (as defined in 49 CFR 173.51, or a Class A explosive as defined in 49 CFR 173.53).
- It is a Class B explosive (see 49 CFR Section 173.88).

QUESTION: Is the waste reactive according to 40 CFR Section 261.23?

☐ Yes ☐ No

#### Toxicity

A waste is toxic if the toxicity characteristic leaching procedure (TCLP) shows that a representative sample from the waste contains one or more constituents at or above the levels listed in Table 3-1. The TCLP is described in EPA Method 1311 (SW-846).

QUESTION: Is the waste toxic according to 40 CFR Section 261.24?

☐ Yes ☐ No

#### **Table 3-1. TCLP Regulatory Levels**

arsenic —5.0 mg/l 1,4-dichlorobenzene — 7.5 mg/l nitrobenzene — 2.0 mg/l barium — 100.0 mg/l 1,2-dichloroethane — 0.5 mg/l pentachlorophenol — 100.0 mg/l benzene — 0.5 mg/l 1,1-dichloroethylene — 0.7 mg/l pyridine — 5.0 mg/l selenium — 1.0 mg/l cadmium - 1,0 mg/l 2,4-dinitrotoluene — 0.13 mg/l silver — 5.0 mg/l carbon tetrachloride — 0.5 mg/l endrin - 0.02 mg/l heptachlor (and its epoxide) - 0.008 mg/l tetrachloroethylene — 0.7 mg/l chlordane — 0.03 mg/l chlorobenzene — 100.0 mg/l hexachlorobenzene — 0.13 mg/l toxaphene — 0.5 mg/l chloroform - 6.0 mg/l hexachlorobutadiene - 0.5 mg/l trichloroethylene — 0.5 mg/l 2,4,5-trichlorophenol — 400.0 mg/l chromium — 5.0 mg/l hexachloroethane - 3.0 mg/l 2,4,6-trichlorophenol — 2.0 mg/l lead — 5.0 mg/l o-cresol — 200.0 mg/l 2,4,5-TP (Silvex) — 1.0 mg/l lindane — 0.4 mg/l m-cresol — 200.0 mg/l p-cresol - 200.0 mg/l mercury - 0.2 mg/l vinyl chloride - 0.2 mg/l cresol — 200.0 mg/l methoxychlor - 10.0 mg/l 2,4-D — 10.0 mg/l methyl ethyl ketone - 200.0 mg/l

### Review of Checklist Part I—Hazardous Waste

IF the answer to any of the preceding questions in Part I is "Yes,"

THEN the waste is HAZARDOUS; PROCEED to Chapter 4.

IF the answers are "No" to all the preceding questions,

AND the waste is NONINDUSTRIAL.

THEN STOP here.

IF the answers are "No" to all of the preceding questions,

AND the waste is INDUSTRIAL,

THEN PROCEED to Part II.

## Part II: Nonhazardous Industrial Waste Classes 1 & 2

The determination in this part of the checklist applies only to nonhazardous industrial waste—see figure 1 in Chapter 1. (This part of the checklist is based on regulations found in 30 TAC Sections 335.505–06 and 335.508).

IF the answer to any of the **un-numbered** questions

in this part of the checklist is "Yes,"

THEN the nonhazardous industrial waste is a Class 1 waste.

IF all the answers to the **un-numbered** questions in this part are "No,"

THEN the industrial waste is a Class 2 waste.

#### **Generator's Self-Classification**

QUESTION: Has the generator chosen to classify its nonhazardous waste as Class 1?

#### **Container Waste**

IF the waste is a container, greater than 5 gallons in holding capacity, which has held

- ▼ a hazardous substance (as defined in 40 CFR Part 302 and listed in Appendix A of this guidance document),
- ▼ a hazardous waste (including acutely hazardous wastes),
- ▼a Class 1 waste, and/or
- ▼ a material that would be classified as a hazardous or Class 1 waste if disposed of,

THEN answer questions 1 and 2. (Please note that containers that have held acutely hazardous wastes must be triple-rinsed before they can be classified as empty).

IF these conditions are not present in your situation,

THEN proceed to the next un-numbered question.

1. Has the container had all its residues removed?

☐ Yes ☐ No

2. Has the container been rendered unusable?

☐ Yes ☐ No

QUESTION: Are any of the answers to questions (1) or (2) above "NO"?

☐ Yes ☐ No

Regulated Ashestos-Containing Material (See Chapter 8, Definition of Terms, for in:		
QUESTION: Does the waste contain asbestos 40 CFR Part 61? *	material identified as RACM, as defined in	□ Yes □ No
Polychlorinated Biphenyls (PCBs)		
	naterial that originally contained 50 or more	□ Yes □ No
Question: Does the waste contain 50 or mo	ore ppm PCBs?*	□ Yes □ No
Petroleum Substance Waste		otto e antarione e antidade desente e anciente
<ol> <li>Is your waste specifically identified as petroleum substance (see Chapter 8, D of Terms) or contaminated with a mate</li> </ol>	efinitions	
identified as a petroleum substance wa		
2. Does the waste contain more than 1,50 total petroleum hydrocarbons (TPH)?	0 ppm □ Yes □ No	
QUESTION: Are the answers to both of the n (If one or both of the answers are "No," ent		□ Yes □ No
"New Chemical Substance"	The state of the s	· · · · · · · · · · · · · · · · · · ·
See "new chemical substances wastes" in description of how this particular type of waste	a Chapter 8, Definitions and Terms, for a may be classified as Class 2 or 3.	
QUESTION: Is the waste from the production by the federal Toxic Substances Control Ac	of a "new chemical substance," as defined at, 15 U.S.C.A. Section 2602(9)?	□ Yes □ No
Out-of-State Origin	The second secon	
See "wastes generated out-of-state" in Cha how this particular type of waste may be classifi	pter 8, Definitions of Terms, for details on ied as Class 2 or 3.	
QUESTION: Is the waste generated outside To	exas?	□ Yes □ No
Constituent Levels and Specified Propertion: If the waste is a liquid, does it have	ies for Nonhazardous Industrial Class 1 ve a flash point of less than 65.6°C (150°F)? *	Wastes □ Yes □ No
QUESTION: Is the waste a solid or semi-solid t in storage, transportation, and disposal—	hat—under conditions normally encountered	
<ul><li>is liable to cause fires through friction or t processing; or</li></ul>	hrough retained heat from manufacturing or	
■ can be ignited readily, and when ignited create a serious hazard?	burns so vigorously and persistently as to	□ Yes □ No

QUESTION: Is the waste a semi-solid or solid that, when mixed with an equivalent weight of ASTM Type II laboratory distilled or deionized water, produces a solution with a pH of 2 or less or 12.5 or more?

□ Yes □ No

(Exception: for solidified, stabilized, encapsulated, or otherwise chemically bound wastes, an exception is provided in 30 TAC Section 335.505(3)) \*

QUESTION: Does the waste leach Class 1 toxic constituents at or above the levels listed in Table 1, Appendix 1 of 30 TAC Chapter 335 Subchapter R when submitted to the toxicity characteristic leaching procedure (TCLP)? \*

□ Yes □ No

(For a copy of Table 1, Appendix 1, see Appendix C of this guidance document.)

(Where matrix interferences of the waste cause the Practical Quantitation Limit (PQL) of the specific analysis to be greater than the Maximum Concentration listed in Table 1, Appendix 1 of 30 TAC Chapter 335 Subchapter R, then the achievable PQL becomes the Maximum Concentration, provided that the generator maintains documentation that satisfactorily demonstrates to the TCEQ that lower levels of quantitation of a sample are not possible.)

A satisfactory demonstration includes the results from the analysis of the waste for that specific constituent by a laboratory using an appropriate method found in *Test Methods* for the Evaluation of Solid Waste, Physical/Chemical Methods (EPA SW-846); Methods or Chemical Analysis of Water and Wastes (EPA-600 series); Standard Methods for the Examination of Water and Wastewater; American Society for Testing and Materials (ASTM) Standard Methods; or an equivalent method approved by the TCEQ.

#### **Lack of Class 2 or 3 Information**

QUESTION: Is information lacking that demonstrates the waste belongs in Class 2 or 3?

□ Yes □ No

## Review of Checklist Part II: Class 1 or 2 Nonhazardous Industrial Waste

IF the answer to any of the preceding

un-numbered questions in Part II is "Yes,"

THEN the nonhazardous industrial waste is a Class 1 waste.

PROCEED to Chapter 4.

IF the answers are "No" to all the preceding

un-numbered questions in Part II,

THEN the industrial waste is a Class 2 waste.

PROCEED to Chapter 4.

IF the answers are "No" to all of the preceding

un-numbered questions in Part II,

AND the industrial generator wishes to evaluate

the waste for a possible Class 3 status,

THEN PROCEED to Part III.

# Part III: Nonhazardous Industrial Class 3 Waste

This part of the checklist applies only to nonhazardous, industrial waste that does not meet the definition of a Class 1 waste and is not specifically identified as a Class 2 waste. (The corresponding regulations for this part of the checklist can be found in 30 TAC Sections 335.507 and 335.508.)

### Part III-A. Initial Determinations for Class 3 Status

IF the answer to any of the following questions in Part III-A is "Yes," THEN the nonhazardous, industrial waste *cannot* be considered a Class 3 waste.

<b>Containers</b> Question: Is the waste an empty container?	□ Yes	□ No
Medical Waste	pr 111 111 111 111 111 111 111 111 111 1	
(For a definition, see "medical wastes" in Chapter 8.)  QUESTION: Is the waste a medical waste regulated under 30 TAC Chapter 330, Subchapter Y?	□ Yes	□No
Distilled Water Leaching Test		
QUESTION: When subjected to the 7-day distilled water leaching test, does the waste leach constituents at or above the maximum contaminant levels listed in Table 3, Appendix 1 of 30 TAC Chapter 335, Subchapter R? *  (Table 3 is reproduced in Appendix D of this guidance document.)	□ Yes	□ No
Toxicity Characteristic Leaching Procedure	, goddinau - accentre mer act	
QUESTION: When submitted to the toxicity characteristic leaching procedure (TCLP), does the waste leach Class 1 toxic constituents listed in Table 1, Appendix 1 of 30 TAC Chapter 335 Subchapter R at or above their detection levels? *  (The list of Class 1 toxic constituents is reproduced in Appendix E of this guidance document.)	□ Yes	□ No
<b>Exclusion</b> : Excluded from this list of Class 1 toxic constituents are those addressed in the previous question (that is, constituents identified in Table 3, Appendix 1 of 30 TAC Chapter 335 Subchapter R).		
Petroleum Hydrocarbons		
QUESTION: Does the waste contain detectable levels of petroleum hydrocarbons (Method 1005)? *	□ Yes	□ No
Polychlorinated Biphenyls (PCBs)		
QUESTION: Does the waste contain detectable levels of PCBs? *	□ Yes	□ No
Decomposition		
QUESTION: Is the waste readily decomposable?	□ Yes	□ No

### Review of Checklist Part III-A: Class 3 Nonhazardous Industrial Waste

IF the answer to any of the preceding questions in Part III-A is "Yes,"

THEN the nonhazardous, industrial waste cannot be considered a Class 3 waste.

IF all the answers to the preceding questions in Part III-A are "No,"

THEN proceed to Part III-B to continue the waste's evaluation for possible Class 3 status.

## Part III-B: Final Determinations for Class 3 Status

#### Inertness

QUESTION: Is the waste inert? (Inertness refers to chemical inactivity of an element, a compound, or a waste.)

☐ Yes ☐ No

#### Insolubility

QUESTION: Is the waste essentially insoluble?

☐ Yes ☐ No

(Note: wastes that contain liquids are NOT considered insoluble.)

#### **Review of Checklist Part III**

IF the answer to any question under Part III-B is "No,"

THEN the nonhazardous, industrial waste cannot be considered a Class 3 waste.

IF all the answers to the questions in Part III-A are "No,"

AND all the answers to the questions in Part III-B are "YES,"

THEN the nonhazardous industrial waste is a Class 3 waste.

# Part IV. Variance from Waste Classification

The TCEQ may determine, on a case-by-case basis, the merits of a variance request for a specific nonhazardous classification. The burden of justifying the need for a variance is on the requestor. The requestor must submit information sufficient to clearly indicate the issues involved, the reason(s) for the request, and both the positive and negative impacts that may result from the granting of the variance. (The regulations corresponding to these types of variance requests can be found in 30 TAC Section 335.514, Variance from Waste Classification Provisions.)

<sup>\*</sup> As a reminder, these characteristics need not necessarily be addressed by analytical testing. A generator may be able to address them through process knowledge. For more information on process knowledge, please see Chapter 4 of this guidance document.

Chapter 4

# Process Knowledge, Analytical Testing, and Documentation Requirements

## Introduction

Now that you know how to classify your wastes, you are ready to compile supporting documentation. Documentation should support the classification and coding of a waste stream. You must properly document each waste stream generated by the facility, and keep that documentation for at least three years after the waste is no longer generated, stored, or recycled or until the site is closed.

The regulations on documentation requirements can be found in 30 TAC Section 335.9 (Record Keeping and Annual Reporting Procedures Applicable to Generators), Section 335.70 (Record Keeping), Section 335.510 (Sampling Documentation), Section 335.511 (Use of Process Knowledge), and Section 335.513 (Documentation Required).

The TCEQ randomly audits a portion of waste stream *notifications* (see Chapter 6) in order to ensure proper classification and coding of waste in Texas. When the TCEQ sends you a request for information for the purpose of an audit, you must send the agency the information that you have gathered to make your hazardous waste determination/waste classification. Please use Chapter 4 as a guide to compiling supporting documentation for each waste stream generated at your facility.

# Process Knowledge

If process knowledge is used in classifying a waste, that knowledge must be documented and kept on file for three years. Process knowledge must be in writing or stored in some electronic form. It cannot be stored solely in someone's mind. The process knowledge must support a generator's reasoning about why the waste has been given a particular classification. It must also support the generator's reasoning about why a particular test method was not performed.

The following are some examples of process knowledge that may assist in classifying waste:

- description of the waste;
- date of initial waste generation;
- a detailed description of the process generating the waste (that is, identification of chemicals or other materials in the process that generated the waste stream (including any potential breakdown products);
- manufacturer's literature such as Material Safety Data Sheets—MSDSs (although they were not created for the purpose of determining Texas waste classification, and do not contain information on all constituents found in a product, MSDSs may be helpful);
- full description of activities that generated the waste stream;
- identification of potential contaminants;
- other documentation generated in conjunction with the particular process.

# **Analytical Data**

If a generator uses analytical data to classify a waste, the data must be supported by documentation of the sampling procedure and the analytical testing. The following lists specify information that must be maintained when analytical data is used for classification purposes.

# **Sampling Procedures**

The following procedure must be documented:

- dates of sample collection;
- description of the site and/or unit from which the sample was taken, including sampling locations;
- the method and equipment used for sampling;
- a description of the sampling techniques, including collection, containerization, and preservation;

■ rationale—that is, supporting reasons for the sampling plan (why the number, type, and location of samples taken accurately represent the waste stream being characterized).

## **Analytical Testing**

Documentation of analytical testing must include the following:

- Analytical results (including quality control data).
- Analytical methods (including any preparatory methods).
- The detection limits for each analysis.
- Name of laboratory performing the analysis.
- Chain of custody—documentation tracking the condition of the waste containers. For example, were the waste containers and their seal intact or broken upon arrival at the laboratory? Were the containers full, half-full, or empty? Did all the containers arrive at the laboratory or just a partial shipment?
- Documentation that satisfactorily demonstrates that lower levels of quantitation are not possible (this is only necessary when the waste media causes the Estimated Quantitation Limit (EQL) of a Class 1 toxic constituent (as listed in Appendix E of this guidance document) to be greater than the concentration listed (matrix interference). (Terms in italics are explained in Chapter 8.)

# **Classification Checklist**

Although the checklist in Chapter 3 can be used to help classify industrial and hazardous waste, a generator should support the checklist's "yes" or "no" responses with process knowledge and/or ana-

lytical data. A completed checklist by itself is not sufficient documentation to submit to the TCEQ in response to a random audit of classification.

For example, a generator answers "no" to the question "Is the waste ignitable according to 40 CFR Section 261.21." You can support this response by submitting process knowledge, analytical data, or both. If process knowledge is used, it must be **specific**. A general statement such as "the waste is not ignitable" would not be sufficient.

Instead, you should document specific actions you took and their results, such as (1) reviewed all constituents that may be present in the waste; (2) determined that each constituent present in the waste does not meet the definition of an ignitable waste; and (3) determined that the process generating the waste does not introduce any ignitable characteristics to the waste stream. You should keep copies of your documentation demonstrating that the constituents in the waste stream would not cause the waste to exhibit the characteristic of ignitability.

# Rule of Thumb about Documentation

Remember that documentation should demonstrate why a waste has been given a particular classification. Here's a good rule of thumb: if someone else can review your classification documentation, using the published criteria and/or the checklist, and arrive at the same classification you did, then you have probably done a good job of compiling supporting documentation for a waste classification. On the other hand, if someone reviews your classification and still has unanswered questions, then you may want to gather additional documentation (from process knowledge and/or analytical data) to support your classification of that waste stream.

# Texas Waste Code Formula

Chapter 5 describes the 8-digit Texas waste code that identifies each of your waste streams. (Part of the information to complete this waste code comes from the waste determination process (described in Chapter 3) and from the documentation you must compile and keep on hand (described in Chapter 4).)

The formula for the Texas waste code is given in Figure 5-1. The rules corresponding to this formula can be found in 30 TAC Section 335.503 (Waste Classification and Waste Coding Required).

# Sequence Number

Although called a sequence "number," this part of the code may contain a mix of numbers and letters—alphanumeric; and sometimes it may consist of letters alone. Various types of 4-digit sequence numbers are used in the Texas waste code.

- An arbitrary and unique 4-digit number from 0001 to 9999 (no alpha characters), which is assigned by the generator when adding a waste stream to Texas facility's Notice of Registration (see Chapter 6, Notification Requirements). Once assigned to a particular waste stream, a sequence number cannot be reassigned to another waste stream. Generators need not sequentially assign sequence numbers to a facility's waste streams.
- A 4-digit alphanumeric number assigned by the TCEQ (under the one-time shipment program) to wastes generated by unregistered generators within Texas. (Spill waste not managed under the Emergency Response Program may be handled in this manner.)
- "SPIL" to be assigned only by the Emergency Response Team of the Field Operations Division for spill wastes regulated under the Emergency Response Program.
- "OUTS" to be used for wastes generated outside of Texas.
- "CESQ" to be used by municipal hazardous and industrial CESQGs (Conditionally Exempt Small-Quantity Generators).
- "TSDF" (treatment, storage, and disposal facilities), to be used by facilities that

(1) receive and consolidate a waste stream with other like waste streams (thus not changing the form or composition of the waste); or (2) store a received waste without treating or changing its form or composition. This sequence number does not apply to wastes that are treated or altered in some other way. The "TSDF" designation is to be used only by facilities that store and/or accumulate waste from more than one site for subsequent shipment to a treatment or disposal facility.

## Form Code

The second series of numbers found in the Texas waste code is the "form code." The list of form codes as well as flowcharts that depict the choosing of a form code can be found in Appendix G.

Form codes are broken down into 10 major categories. They are Lab Packs, Inorganic Liquids, Organic Liquids, Inorganic Solids, Organic Solids, Inorganic Sludges, Organic Sludges, Inorganic Gases, Organic Gases, and Plant Trash. The various form codes and corresponding descriptions can be found under these categories in Appendix G.

In determining a waste stream's form code, TCEQ recommends that the generator first determine the major category into which the waste stream fits. Then review all the form code descriptions in that category to determine which code or codes best describe your waste stream. From this narroweddown list, choose a form code for the waste stream.

# Classification

The waste stream's classification completes the Texas waste code. As Figure 5-1 showed, this part of the Texas waste code will be "H" or "1", "2", or "3".

# Stop! Are You about to Misclassify a Waste?

Table 5-1 provides additional information about using certain combinations of form and class codes.

Figure 5-1. Components of a Texas Waste Code

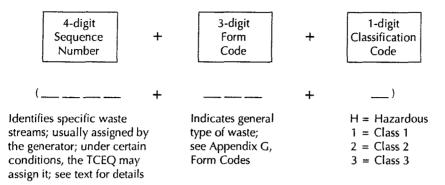


Table 5-1. Questions to Ask about Some Combinations of Coding and Classification

IF the waste is	AND you assigned form codes	Are you sure about a classification of
Any Class 3 waste	Any form code	Class 3? (You must submit all supporting documentation)
Asbestos solids, debris, slurry, sludge, etc.	311, 515	Class 2? (Wastes that contain regulated asbestoscontaining material are Class 1)
Oils	205, 206 <sup>a</sup>	Class 2? (Wastes that contain more than 1,500 ppm total petroleum hydrocarbons are Class 1)
PCB-containing materials	297,298,394,395,396,397, 398,399,494,495,496,497, 498,499,598,599,698,699	Class 2? (Wastes that contain 50 ppm or more PCBs are Class 1)
Petroleum-containing materials	205,206°,296,489,510,603, 606,695,696	(Petroleum substance wastes that contain more than 1,500 ppm total petroleum hydrocarbons are Class 1)
Plant trash	902 and 999 <sup>b</sup>	Hazardous, Class 1, or Class 3? (Only wastes that are Class 2 may be given a form code for plant trash)
Spent lead acid batteries	309°	Hazardous

<sup>&</sup>lt;sup>a</sup>If your waste oil is nonhazardous, is managed under 40 CFR 279 and 30 TAC 324, and is recycled 100 percent, then do not add to your Notice of Registration (the central record that the TCEQ compiles from waste notifications you send in—see Chapter 6, Notification Requirements and Forms).

<sup>&</sup>lt;sup>b</sup>Only form codes 902 and 999 may be used.

<sup>&#</sup>x27;If all your lead acid batteries are managed under the "universal waste" rule in 40 CFR Part 273, then do not add to your Notice of Registration.

Chapter 6

# Notification Requirements and Forms

This chapter describes forms and supporting documentation you must send to the TCEQ to notify the agency about waste streams that you generate. The regulations on notification can be found in 30 TAC Section 335.6 (Notification Requirements), Section 335.502 (Conversion to New Waste Notification and Classification System), Section 335.508 (Classification of Specific Industrial Solid Wastes), Section 335.509 (Waste Analysis), and Section 335.513 (Documentation Required).

# Notifications about Industrial or Hazardous Waste

You must submit information about industrial or hazardous wastes no later than 90 days after the waste's initial generation and before handling, shipment, or disposal; use TCEQ form 00002 or the TCEQ State of Texas Environmental Electronic Reporting System (STEERS) software. (For information on obtaining TCEQ forms and how to access the STEERS information, see this chapter's section "TCEQ and EPA Forms.")

Please Note: All Large-Quantity Generators (LQG) must use STEERS to update their Notice of Registration (NOR). This requirement, effective December 15, 1997, is found in 30 TAC Section 335.6(b). Therefore, if you are a LQG and you need to update your NOR to replace inactivated waste code, please do so using STEERS.

The TCEQ uses the information submitted on these forms to create a record called the *Notice of Registration*, which contains site-specific waste management information about industrial and municipal hazardous waste generators in Texas.

# Notifications about New Chemical Substance Waste

For a Class 2 or Class 3 waste generated as the result of the production of a "new chemical substance" (see Chapter 8, Definitions of Terms), you must follow the instructions below:

- Give the TCEQ notice that the waste is from the production of a "new chemical substance."
- Submit all supporting reasons and documentation used in that waste's classification.
- Manage nonhazardous waste from the production of a "new chemical substance" as a Class 1 waste, unless you can provide appropriate analytical data and/or process knowledge demonstrating that the waste meets the definition of a Class 2 or Class 3, and the TCEQ concurs. (For definitions of Class 2 and 3, see Chapter 8 and the classification checklist in Chapter 3.)
- If you have not received concurrence or denial from the TCEQ within 120 days from the date of your request for review, you may manage the waste according to the requested classification, but you must give the TCEQ 10 working days written notice before managing the waste as a Class 2 or a Class 3.

# Notifications about Class 2 and Class 3 Out-of-State Waste

If you want to ship a nonhazardous waste into Texas, it is automatically considered a Class 1 waste (and expected to be managed as such) unless

- you request the TCEQ to review your waste classification documentation supporting a lower classification such as Class 2 or 3; and
- the TCEQ concurs with the lower classification.

After concurrence from the TCEQ you must comply with the lower classification's requirements on shipping, record keeping, and disposal of the waste. If, after review of your documentation, the TCEQ disagrees with your waste classification, you must continue managing the nonhazardous waste as Class 1 waste.

# Notifications about Other Industrial and Hazardous Wastes from out of State

Please note the following special requirements for the documentation of industrial and hazardous waste that is imported to Texas from foreign countries and other U.S. states.

- If out-of-state generators and importers of record want to bring hazardous waste into Texas, they must have an EPA Identification number. Generators and importers who do not have this ID number must obtain one from the EPA, using EPA Form 8700-12.
- Out-of-state generators or importers of record must fill out a Uniform Hazardous Waste Manifest (TCEQ-00311) and place their EPA ID number in Box 1 of this form.
- In Box B of the Uniform Hazardous Waste Manifest, use one of the generic numbers for identifying the country or state of origin. For example: F0061 for hazardous and or nonhazardous industrial waste imported from Mexico, D0022 for Louisiana (Appendix H gives these codes). For more information about manifesting imported industrial and hazardous waste, see 40 CFR 262.60 and 30 TAC 335.76 (d).
- OUTS must be used as the 4-digit sequence number of the Texas waste code in Box I of the manifest.

# Notifications about Alternate Analytical Methods

Generators who propose an alternate analytical method must validate their alternate method by demonstrating that it is equal to or superior in accuracy, precision, and sensitivity to the corresponding EPA-approved methods for analytical testing given in Standard Methods for the Examination of Water and Wastewater, SW-846, EPA-600/4-79/020.

In making this demonstration, the generator must provide the TCEQ, at a minimum, the following documentation:

- a full description of the proposed method (including all equipment and reagents to be used);
- a description of type of waste and waste matrices to be analyzed (for definitions of terms in italics, see Chapter 8);

- comparative results of the proposed method and corresponding SW-846 or ASTM method;
- a complete assessment of interferences with the proposed method (see, for example, matrix interference in Chapter 8);
- a description of quality control procedures;
- additional information as needed and/or requested by the TCEQ to adequately review the proposed alternate method.

## TCEO and EPA Forms

#### How to Order

Notification forms can be obtained in several ways:

- Contact the TCEQ regional office near you.
- On the Internet go to http://www.tceq.state
  .tx.us and select the "Forms & Publications"
  link. Access the Forms Database and type in
  the form number. (The instructions for form
  TCEQ-00002 are in a separate download file).
- Fax your order to 512/239-4488, or order forms by voice at 512/239-0028, the TCEQ's publications unit. Be sure to give the form *numbers* that you want; this information will help the TCEQ get the correct form to you as quickly as possible.

#### **How to Access STEERS**

State of Texas Environmental Electronic Reporting System (STEERS) information, including an application package, can be obtained as follows:

- on the Internet, go to https://www2.tceq.state .tx.us/steers; or
- call the STEERS Help Line at (512) 239-6925.

#### **Currently Available Forms**

Notification forms available at the time of this printing include the following:

- The hazardous or industrial waste

  "Initial Notification Form," used
  for initial notification about a site, and adding
  a waste stream to your Notice of Registration
  (see chapter 6) or when recording a 6-digit
  waste code into one or more 8-digit waste
  codes. (form number: TCEQ-00002)
- The "Hazardous or Industrial Waste Management Unit Form," used when adding information about a waste management unit to a Notice of Registration. (form number: TCEQ-00002)

- The "Uniform Hazardous Waste Manifest," used by generators and transporters of hazardous waste and by owners or operators of hazardous waste treatment, storage, and disposal facilities for both inter- and intrastate transportation. (form number: TCEQ-00311—Only order form available on the Web)
- The "One-Time Shipment Request ... for Shipment of Class 1, 2, 3 and EPA Hazardous Waste," used by unregistered generators,
- not by generators that already have a site's Notice of Registration. (form number: TCEQ-00757)
- The EPA "Notification of Regulated Waste Activity" form, used when notifying EPA of a federally regulated hazardous waste activity—for example, the generation of hazardous waste. (form number: EPA 8700-12—Available on the Web as part of TCEQ-00002)

Chapter 7

# Management of Mechanical Shredding Wastes

The regulations on mechanical shredding waste can be found in 30 TAC Section 335.508 (Classification of Specific Industrial Solid Wastes).

Wastes generated by the mechanical shredding of automobiles, appliances, or other items of scrap, used, or obsolete metals are handled according to the provisions of the Texas Solid Waste Disposal Act, Health and Safety Code, Section 361.019 (Vernon Pamphlet 1992), until the TCEQ develops specific

standards for the classification of this waste and ensures adequate disposal capacity.

These provisions say that you can dispose of mechanical shredding wastes in a municipal landfill facility authorized to accept Class 1 and 2 industrial solid wastes, if the shredding waste:

- contains no free liquids, and
- is not a hazardous waste.

As mentioned earlier, TCEQ may establish other requirements.

# **Definitions of Terms**

For readers' convenience, this chapter gives the full version of some abbreviations and brief descriptions of some important terms used in this guidance document. Full, official definitions can be found in the sources cited. Nothing in this chapter takes the place of any definitions in laws, rules, or regulations.

Acutely hazardous wastes (40 Code of Federal Regulations (CFRs) Parts 261.31–33 and subject to the exclusion established in 40 CFR Part 261.5: EPA hazardous waste numbers F020, F022, F023, F026, and F027)—A subset of *listed hazardous wastes* that carry the "H" code; they are considered very harmful to human health and the environment.

**ASTM**—American Society for Testing and Material

CFR—Code of Federal Regulations

Characteristically hazardous waste (40 CFR Part 261 Subpart C)—Any waste that exhibits the characteristics of ignitability, corrosivity, reactivity, and/or toxicity as defined by the EPA in 40 CFR Part 261 Subpart C. These are often referred to as the "D" wastes. (Also see Chapter 3 of this guidance document.)

Class 1 waste [30 TAC Section 335.1(14)]— Any waste or mixture of waste that, because of its concentration or physical or chemical characteristics is toxic; corrosive; flammable; a strong sensitizer or irritant; a generator of sudden pressure by decomposition, heat, or other means; or may pose a substantial present or potential danger to human health or the environment when improperly processed, stored, transported, disposed of, or otherwise managed. (The checklist in Chapter 3 takes you through the process of distinguishing hazardous waste from nonhazardous Class 1 waste.)

Class 2 waste [30 TAC Section 335.1(15)]— Any individual waste or combination of waste that cannot be described as hazardous waste or as nonhazardous Class 1 or Class 3 waste.

Class 3 waste [30 TAC Section 335.1(16)]— Waste that is *inert* and *essentially insoluble* (see definitions of terms in italics), usually including but not limited to materials such as rock, brick, glass, dirt, certain plastics, rubber, and similar materials that are not readily decomposable.

Classification code (30 TAC Section 335.503)—This last digit of the Texas waste code

represents the classification of the waste stream. The letter H represents hazardous wastes; and the number 1, 2, or 3 represents nonhazardous industrial waste Class 1, 2, or 3.

Conditionally Exempt Small-Quantity Generator (30 TAC Section 335.78)—Generators of less than 100 kg (220 lbs) per month of hazardous waste, or less than 1 kg (2.2 lbs) per month of acutely hazardous waste (see description of term in italics in this chapter).

**Essential insolubility** (30 TAC Section 335.507)—Is established when using:

- the Seven-Day Distilled Water Leachate Test, and the extract from the sample of waste does not leach greater than the Maximum Contaminant Level listed in Appendix 1, Table 3 of 30 TAC Chapter 335, Subchapter R;
- the test methods described in 40 Code of Federal Regulations Part 261, Appendix II, and the extract from the sample of waste does not exhibit detectable levels of the constituents found in Appendix 1, Table 1 of 30 TAC Chapter 335, Subchapter R;
- an appropriate test method, and a representative sampling of the waste does not exhibit detectable levels of total petroleum hydrocarbon (TPH); ("Petroleum substance wastes" are not subject to 30 TAC's subsection on essential insolubility.)
- an appropriate test method, and a representative sampling of the waste does not exhibit detectable levels of polychlorinated biphenyls (PCBs).

Form code (30 TAC Section 335.503)—This code describes the general type of waste stream. It consists of three numbers, the 5th, 6th, and 7th digits in the Texas waste code (see Figure 4-1 in Chapter 4). More than one form code may apply to a particular waste stream.

Hazardous substance (30 TAC Section 335.508)—Any substance designated as "hazardous" in 40 CFR Part 302 (Table 302.4) including, but not limited to, waste designated as hazardous in the Resource Conservation Recovery Act (RCRA).

Hazardous waste (40 CFR 261.3.)—The EPA defines a waste as hazardous if it exhibits one or more of four hazardous "characteristics," or if it is one of several hundred wastes "listed" as hazardous. For details, see Chapters 1 and 3 of this guidance document.

Hazardous waste determination (30 TAC Section 335.504)—An evaluation of a waste to determine whether it meets the RCRA definition of a hazardous waste.

Inert (30 TAC Section 335.507)—Inertness refers to the chemical inactivity of an element, compound, or waste. Ingredients added to mixtures chiefly for the purposes of bulk and/or weight are normally considered inert.

Listed hazardous wastes (40 CFR Part 261 Subpart D)—Specific wastes that have been identified by the EPA as hazardous. These are often referred to as the "F" wastes (waste from nonspecific sources); "K" wastes (wastes from specific sources); "P" wastes (acutely hazardous off-specification materials, container residues, and spill residues of these materials); and "U" wastes (toxic, hazardous off-specification materials, container residues, and spill residues).

A waste is considered hazardous if

- it is listed in 40 CFR Part 261 Subpart D, or
- is mixed with or derived from a waste listed there, and
- has not been provided a particular exclusion from the definition of hazardous as provided in 40 CFR Sections 261.3-4.

Matrix interference—Interference with the precision of analytical testing for a particular constituent in a waste stream due to other material(s) in the sample (contamination by carryover). See also waste matrices.

Medical wastes (30 TAC Section 335.508)—Nonhazardous medical wastes that are subject to the provisions of 30 TAC Chapter 330 Subchapter Y are designated as Class 2 wastes. An example of such waste would be needle-bearing syringes from plant infirmaries.

"New chemical substance" waste (30 TAC Section 335.508)—If a nonhazardous industrial waste is generated as a result of the commercial production of a "new chemical substance" as defined by the federal Toxic Substances Control Act, *United States Code Annotated* (U.S.C.A.), Title 15, Section 2602(9), the generator must manage that waste as a Class 1 waste, unless the generator can provide appropriate analytical data and/or process knowledge demonstrating that the waste is Class 2 or Class 3, and the TCEQ concurs. If the generator has not re-

ceived concurrence or denial from the TCEQ within 120 days from the date of the request for review, the generator may manage the waste according to the requested classification, but not before giving 10 working days written notice to the TCEQ.

Notice of Registration (NOR)—TCEQ term for the information it collects in its database on each hazardous or industrial waste handler: generator, receiver, transporter, and recycler. The NOR includes the facility's physical and mailing addresses, information on waste streams that are generated or handled at the site, a list of individual units at the facility where wastes are managed, and other information. It also contains the state facility identification numbers and the EPA facility number, issued by the TCEO. The NOR serves to verify the information submitted by each handler. When a generator registers with the TCEQ using form TCEQ-00002, the agency sends back a printout of the information in its database about the site and generator. The handler should keep the NOR current and in on-site files and check it periodically to make sure that it accurately reflects the facility's waste streams and waste management units.

Petroleum-hydrocarbon-containing wastes (30 TAC Section 335.508)—Wastes resulting from the cleanup of leaking underground storage tanks (USTs), which are regulated under 30 TAC Chapter 334 Subchapter K (relating to Petroleum Substance Waste), are not subject to classification under 30 TAC Chapter 335 Subchapter R (Waste Classification).

**Petroleum substance**—A crude oil, or any refined or unrefined fraction or derivative of crude oil, that is a liquid at standard conditions of temperature and pressure. These substances include the following:

- combinations or mixtures of basic petroleum substances, such as crude oils, crude oil fractions, petroleum feedstocks, and petroleum fractions;
- aviation gasolines, aviation jet fuels, distillate fuel oils, residual fuel oils, gas turbine fuel oils, illuminating oils, lubricants, building materials, insulating and waterproofing materials, used oils;
- solvents or a combination or mixture of solvents—except for any listed substance regulated as a hazardous waste under the federal Solid Waste Disposal Act, Subtitle C (*United States Code*, Title 42, Section 6921, et seq.)—that are liquid at standard conditions of temperature (20° centigrade) and pressure (1 atmosphere). Examples include Stoddard

solvent, petroleum spirits, mineral spirits, petroleum ether, varnish makers' and painters' naphthas, petroleum extender oils, and commercial hexane.

The following materials are *not* considered petroleum substances:

- polymerized materials, such as plastics, synthetic rubber, polystyrene, high- and low- density polyethylene;
- animal, microbial, and vegetable fats;
- food-grade oils;
- hardened asphalt and solid asphaltic materials, such as roofing shingles, roofing felt, hot mix and cold mix; and
- cosmetics.

Practical Quantitation Limits (PQLs)—See quantitation.

**Process Knowledge**—See examples in Chapter 4 under this subheading.

**Quantitation**—Generally, measurement of quantity or amounts. The word appears in a number of specialized terms used in waste regulation:

- Quantitation Limits (QLs) indicate the levels at which measurements can be "trusted."
- Practical Quantitation Limits (PQLs) and Estimated Quantitation Limits (EQLs) are levels that are routinely and reliably detected and quantitated in a variety of sample matrices. These are 3 to 5 times the Method Detection Limits (MDLs). (See Chapter 1, SW 846, 1992.)
- Method Detection Limits (MDLs) take into account the reagents, sample matrix, and preparation steps applied to a sample in specific analytical methods. (See 40 CFR Part 136, Appendix B; Chapter 1, SW 846, July 1992.)

RCRA—Resource Conservation and Recovery Act (amendment to the Solid Waste Disposal Act). Primarily designed to regulate five types of disposal activities: hazardous waste, solid waste, underground storage tanks, oil waste, and medical waste. In this guidance document, any mention of "RCRA" refers to RCRA Subtitle C, which applies to all handlers of hazardous waste, including generators; transporters; and operators of treatment, storage, and disposal (TSDF) facilities. (RCRA, a federal law, covers only whether a solid waste is either hazard-

ous or nonhazardous. Texas regulations further subdivide nonhazardous waste into Classes 1, 2, and 3.)

Regulated asbestos-containing material (RACM) (30 TAC Sections 335.508)—RACM includes the following:

- friable asbestos containing more than 1 percent asbestos¹ that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure;
- nonfriable asbestos-containing material containing more than 1 percent asbestos as measured by the method found in 40 CFR Part 763, Subpart E, Appendix E, Section 1 that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
- Category I nonfriable asbestos includes packings, gaskets, resilient floor coverings, and asphalt roofing products);
- Category II nonfriable asbestos includes transite shingles, transite pipes, and any nonfriable asbestos material not defined as Category I.

Regulated generators (30 TAC Chapter 335 Subchapters A and C)—If you generate the following amounts of waste, you are a regulated generator and must follow regulations in Chapter 335:

Waste Type	Monthly Amount
Class 1	100 kg (220 lbs) or more
hazardous	100 kg (220 lbs) or more
acutely hazardous	1 kg (2.2 lbs) or more

If you generate less than the amounts shown above, you are considered a Conditionally Exempt Small-Quantity Generator and are not subject to regulations requiring notification, manifesting, and fees.

Sequence number (30 TAC Section 335.503)—The first 4 digits of the waste code (actually these four characters may be numbers, letters, or a combination of the two). The sequence number is used as an internal numbering system determined by each generator. The number of a waste may range from 0001 to 9999, and can only be used once.

**Solid waste** (30 TAC Section 335.1 and 40 CFR Section 261.2)—Any discarded material such as garbage; refuse; sludge from a waste treatment plant,

<sup>&</sup>lt;sup>1</sup>As determined using the method specified in 40 CFR Part 763, Subpart E, Appendix E, Section 1, Polarized Light Microscopy.

water supply treatment plant, or air pollution control facility; or other material including solid, liquid, semisolid, or contained gaseous material resulting from industrial, municipal, commercial, mining, and agricultural operations. Solid wastes include any material that is abandoned by being disposed of; burned or incinerated; or accumulated, stored, or treated before or in lieu of these activities. Certain recycled materials are also considered wastes. Solid wastes are often referred to simply as "wastes." For the complete definition of a "solid waste," please refer to 30 TAC Section 335.1 (Solid Waste).

Specific industrial solid waste (30 TAC Section 335.508)—A nonhazardous waste for which specific classification criteria and/or a form code have been established.

Stabilized wastes (30 TAC Section 335.508)—Wastes that originally exhibit hazardous characteristics can be *stabilized* so that they are no longer hazardous and can meet the criteria for classification as Class 1 or 2 nonhazardous industrial waste. For example a waste containing lead that exhibits the hazardous characteristic of toxicity can be stabilized by mixing with cement in the proper proportion to reduce the toxicity or mobility of contaminants. Depending on the process(es) used, stabilization achieves varying degrees of long-term effectiveness.

Synthetic oils—Oils not derived from crude oil, including those derived from shale, coal, or a polymer-based starting material; and nonpolymeric synthetic fluids that are used as hydraulic fluids and heat transfer fluids, such as those based on phosphate esters, diphenyl oxide, or alkylated benzenes. Synthetic oils are generally used for the same purpose as oils, and they present relatively the same level of hazardousness after use.

TAC—Texas Administrative Code. Title 30 of TAC contains TCEQ rules on industrial solid waste and municipal hazardous waste, among other subjects.

**TSDF**—Treatment, storage, and disposal facilities.

Universal Waste (30 TAC Section 335.261 and 40 CFR Part 273)—This rule covers five types of waste:

 all hazardous waste batteries as described in 40 CFR 273.2;

- mercury-containing thermostats as described in 40 CFR 273.4;
- some hazardous waste pesticides as described in 40 CFR 273.3;
- paint and paint-related waste as described in §335.262(b);
- lamps as described in 40 CFR §273.5, and §335.261(b)(16)(F).

The rule establishes a reduced set of regulatory requirements for facilities managing universal waste, depending on whether the facility falls into one of four categories:

- small-quantity handler of universal waste (SOHUW),
- large-quantity handler of universal waste (LQHUW),
- transporter of universal waste, or
- final destination facilities.

In addition, the rules establish a petitioning procedure whereby additional wastes may be added to the universal waste rule.

U.S.C.A.—United States Code Annotated.
Used oil (30 TAC Section 335.1, 30 TAC Section 324 (relating to used oil), and 40 CFR Part 279 (relating to standards for management of used oil)<sup>2</sup>—Any oil refined from crude oil, or any synthetic oil, that has been used and, from such use, is contaminated by physical or chemical impurities and cannot be used for its intended purpose (that is, it is a spent material).

Used oil fuel includes any fuel produced from used oil by processing, blending, or other treatment.

Waste—Unwanted materials left over from a manufacturing process; refuse from places of human or animal habitation,

Waste code—Also referred to as Texas waste code (30 TAC Section 335.503)—This 8-digit code identifies a waste stream. The first 4 digits are the *sequence number*, the next 3 digits are the *form code*, and the last digit is the waste's *classification* (sequence number + form code + classification code = waste code). (Some of the "digits" referred to here actually may be letters or a combination of letters and numbers.)

Waste matrices—Water and soil or sediment in which a waste is found.

<sup>&</sup>lt;sup>2</sup>Rules applicable to nonhazardous used oil, are found in Chapter 324, state regulations on recyclable used oil, and 40 CFR Part 279, federal regulations on used oil recycling.

Wastes generated out-of-state (30 TAC Section 335.508)—All nonhazardous industrial waste generated outside the state of Texas and transported into or through Texas for processing, storage, or disposal is classified as Class 1 unless the waste satisfies the Class 2 or 3 criteria as defined in 30 TAC Sections 335.506–8. A Class 2 or 3 waste determination, accompanied by all supporting process knowledge and analytical data, must be submitted to the TCEQ for approval.

Waste stream (30 TAC Section 335.503)—
The total flow of solid waste from homes, businesses, institutions, and manufacturing plants that is recycled, burned, or disposed of in landfills; or segments of that total flow, such as the "residential waste stream" or the "recyclable waste stream." (It should be noted that the terms "waste stream", "solid waste", and "waste" are often used interchangeably by federal and state regulators as well as many members of the regulated community).

# Hazardous Substances

Applicability: Empty Container Class 2 Evaluations

The following is a listing of materials identified as hazardous substances (40 CFR Table 302.4) in effect at the time of this guideline's printing. (As amended at 57 FR 61492, Dec. 24, 1992; 58 FR 35314, June 30, 1993; 59 FR 31551, June 20, 1994; 60 FR 7824 Feb. 9, 1995). CAS numbers of the materials are also provided.

Hazardous Substance	CAS Number	Hazardous Substance	CAS Number
Acenaphthene	83329	Ammonium chloride	12125029
Acenaphthylene	208968	Ammonium chromate	7788989
Acetaldehyde	75070	Ammonium citrate, dibasic	3012655
Acetaldehyde, chloro-	107200	Ammonium fluoborate	13826830
Acetaldehyde, trichloro-	75876	Ammonium fluoride	12125018
Acetamide, N-	591082	Ammonium hydroxide	1336216
(aminothioxomethyl)-		Ammonium oxalate	6009707
Acetamide, N-9H-fluoren-2-yl-	53963	Ammonium picrate	131748
Acetic acid	64197	Ammonium silicofluoride	16919190
Acetic acid (2,4-dichlorophenoxy)-	94757	Ammonium sulfamate	7773060
Acetic anhydride	108247	Ammonium sulfide	12135761
Acetone	67641	Ammonium sulfite	10196040
Acetone cyanohydrin	75865	Ammonium tartrate	14307438
Acetonitrile	75058	Ammonium thiocyanate	1762954
Acetophenone	98862	Ammonium vanadate	7803556
2-Acetylaminofluorene	53963	Amyl acetate	628637
Acetyl bromide	506967	iso-	123922
Acetyl chloride	75365	sec-	626380
1-Acetyl-2-thiourea	591082	tert-	625161
Acrolein	107028	Aniline	62533
Acrylamide	79061	Anthracene	120127
Acrylic acid	79107	Antimony	7440360
Acrylonitrile	107131	Antimony pentachloride	7647189
Adipic acid	124049	Antimony potassium tartrate	28300745
Aldicarb	116063	Antimony tribromide	7789619
Aldicarb sulfone	1646884	Antimony trichloride	10025919
Aldrin	309002	Antimony trifluoride	7783564
Allyl alcohol	107186	Antimony trioxide	1309644
Allyl chloride	107051	Aroclor 1016	12674112
Aluminum phosphide	20859738	Aroclor 1221	11104282
Aluminum sulfate	10043013	Aroclor 1232	11141165
Ametycin	50077	Aroclor 1242	53469219
(7-amino-9-a-methoxymitosane)		Aroclor 1248	12672296
5-(Aminomethyl)-3-isoxazolol	2763964	Aroclor 1254	11097691
4-Aminopyridine	504245	Aroclor 1260	11096825
Amitrole	61825	Arsenic	7440382
Ammonia	7664417	Arsenic acid H <sub>3</sub> AsO <sub>4</sub>	1327522
Ammonium acetate	631618	Arsenic disulfide	1303328
Ammonium benzoate	1863634	Arsenic pentoxide, As <sub>2</sub> O <sub>5</sub>	1303282
Ammonium bicarbonate	1066337	Arsenic trichloride	7784341
Ammonium bichromate	7789095	Arsenic trioxide, As, O <sub>3</sub>	1327533
Ammonium bifluoride	1341497	Arsenic trisulfide	1303339
Ammonium bisulfite	10192300	Arsinic acid, dimethyl-	75605
Ammonium carbamate	1111780	Asbestos	1332214
Ammonium carbonate	506876	Auramine	492808

Appendix A—Hazardous Substances

Hazardous Substance	CAS Number	Hazardous Substance	CAS Number
Azaserine	115026	Butyl acetate	123864
1H-Azepine-1-carbothioic acid,	2212671	iso-	110190
hexahydro-, S-ethyl ester		sec-	105464
Aziridine, 2-methyl	75558	tert-	540885
Barium cyanide	542621	n-Butyl alcohol	71363
Benz[c]acridine	225514	Butylamine	109739
Benzanthracene	56553	iso-	78819
Benz[a]anthracene	57976	sec-	513495
Benzene	71432	sec-	13952846
Benzene, dichloromethyl-	98873	tert-	75649
Benzene, 2,6-diisocyanato-1-methyl-	91087	Butyl benzyl phthalate	85687
Benzene, m-dimethyl	108383	Butyric acid	107926
Benzene, o-dimethyl	95476	iso-Butyric acid	79312
Benzene, p-dimethyl	106423	Cadmium	7440439
Benzenesulfonic acid chloride	98099	Cadmium acetate	543908
Benzene, (trichloromethyl)	9807 <i>7</i>	Cadmium bromide	7789426
Benzidine	92875	Cadmium chloride	10108642
Benzo[a]anthracene	56553	Calcium arsenate	7778441
1,3-Benzodioxol-4-ol, 2,2-dimethyl-,	22961826	Calcium arsenite	52740166
(Bendiocarb phenol)		Calcium carbide	75207
1,3-Benzodioxol-4-ol, 2,2-	22781233	Calcium chromate	13765190
dimethyl-, methyl carbamate		Calcium cyanide Ca(CN) <sub>2</sub>	592018
(Bendiocarb)		Calcium dodecylbenzenesulfonate	26264062
Benzo[b]fluoranthene	205992	Calcium hypochlorite	7778543
Benzo(k)fluoranthene	207089	Captan	133062
Benzoic acid	65850	Carbamic acid, butyl-,	55406536
Benzoic acid, 2-hydroxy-, compound	57647	3-iodo-2-n-butylcarbamate)	17004353
with (3aS-cis)-1,2,3,3a,8,8a-		Carbamic acid, [1-	17804352
hexahydro-1,3a,8-trimethylpyrrolo-		[(butylamino)carbonyl]-	
[2,3-b]indol- 5-yl methylcarbamate		1H-benzimidazol-2-yl,	
ester (1:1) (Physostigmine salicylate)	100470	methyl ester (Benomyl)	, 10605217
Benzonitrile	189559	Carbamic acid, 1H-benzimidazol-2-yl	, 10003217
Benzo(rst)pentaphene	191242	methyl ester Carbamic acid, (3-chlorophenyl)-,	101279
Benzo[ghi]perylene	50328	4-chloro-2-butynyl ester	1012/3
Benzo[a]pyrene p-Benzoquinone	106514	Carbamic acid, dimethyl-,1-	644644
Benzotrichloride	98077	[(dimethylamino)carbonyl]-5-	011044
Benzoul chloride Benzoyl chloride	98884	methyl-1H-pyrazol-3-yl ester	
Benzyl chloride Benzyl chloride	100447	Carbamic acid, dimethyl-,	119380
Beryllium chloride	7787475	3-methyl-1-(1-methylethyl)-	113500
Beryllium powder	7440417	1H-pyrazol-5-yl ester	
Beryllium fluoride	7787497	Carbamic acid, methyl-,	1129415
Beryllium nitrate	13597994	3-methylphenyl ester	
alpha-BHC	319846	Carbamic acid, [1,2-phenylenebis-	23564058
beta-BHC	319857	(iminocarbonothioyl)]bis-,	
delta-BHC	319868	dimethyl ester	
2,2'-Bioxirane	1464535	Carbamic acid, phenyl-,	122429
Bis(2-chloroethyl) ether	111444	1-methylethyl ester (Propham)	
Bis(2-chloroethoxy)methane	111911	Carbamic acid,	615532
Bis(dimethylthiocarbamoyl) sulfide	97745	methylnitroso-, ethyl ester	
Bis(2-ethylhexyl) phthalate	117817	Carbamic chloride, dimethyl-	79447
Bromoacetone	598312	Carbamodithioic acid, dibutyl-,	136301
Bromoform	75252	sodium salt	
4-Bromophenyl phenyl ether	101553	Carbamodithioic acid, diethyl-,	9506 <i>7</i>
Brucine	357573	2-chloro-2-propenyl ester	
I-Butanol	71363	Carbamodithioic acid, diethyl-,	148185
2-Butenal	123739	sodium salt	
		Carbamodithioic acid, dimethyl-,	128030
		potassium salt	

# Appendix A—Hazardous Substances

Hazardous Substance	CAS Number	Hazardous Substance	CAS Number
Carbamodithioic acid, dimethyl-,	128041	Chrysene	218019
sodium salt		Cobaltous bromide	7789437
Carbamodithioic acid, dimethyl-,	144343	Cobaltous formate	544183
tetraanhydrosulfide with		Cobaltous sulfamate	14017415
orthothioselenious acid		Copper	7440508
Carbamodithioic acid,	51026289	Copper, dimethyldithiocarbamate	137291
(hydroxymethyl)methyl-,		Copper cyanide CuCN	544923
monopotassium salt		Coumaphos	56724
Carbamodithioic acid, methyl-,	137417	Creosote	8001589
monopotassium salt		Cresol(s)	1319773
Carbamodithioic acid, methyl-,	137428	m-Cresol	108394
monosodium salt		o-Cresol	95487
Carbamothioic acid, bis(1-	2303175	p-Cresol	106445
methylethyl)-, S-(2,3,3-		Cumene	98828
trichloro -2-propenyl) ester		Cupric acetate	142712
Carbamothioic acid, bis(2-	2008415	Cupric acetoarsenite	12002038
methylpropyl)-, S-ethyl ester		Cupric chloride	7447394
Carbamothioic acid,	1114712	Cupric nitrate	3251238
butylethyl-, S-propyl ester		Cupric oxalate	5893663
Carbamothioic acid,	1134232	Cupric sulfate	7758987
cyclohexylethyl-, S-ethyl ester		Cupric sulfate, ammoniated	10380297
Carbamothioic acid,	759944	Cupric tartrate	815827
dipropyl-, S-ethyl ester (EPTC)		Cyanides	57125
Carbamothioic acid,	52888809	Cyanogen	460195
dipropyl-, S-(phenylmethyl) ester		Cyanogen bromide (CN)Br	506683
Carbamothioic acid,	1929 <i>777</i>	Cyanogen chloride	506774
dipropyl-, S-propyl ester		Cyclohexane	110827
Carbaryl	63252	Cyclohexanone	108941
Carbofuran	1563662	2-Cyclohexyl-4,6-dinitrophenol	131895
Carbofuran, phenol	1563388	Cyclophosphamide	50180
Carbosulfan	55285148	2,4-D Acid	94757
Carbon disulfide	75150	2,4-D (isopropyl) Esters	94111
Carbon oxyfluoride	353504	ŀ	94791
Carbon tetrachloride	56235	1	94804 1320189
Chlorambucil	305033	İ	1928387
Chlordane	57749		
Chlorine	7782505	Dutan unath I	1928616 1929733
Chlornaphazine	494031	Butoxyethl	2971382
o-Chloroaniline	106478	Jeanstyl	25168267
Chlorobenzene	108907	Isooctyl Dichlorophenoxyaceticacid-	53467111
Chlorobenzilate	510156	polyproxybutyl	33707111
o-Chloro-m-cresol	59507	Daunomycin	20830813
Chlorodibromomethane	124481	DDD	72548
Chloroethane	75003	DDE	72559
2-Chloroethyl vinyl ether	110758	DDT	50293
Chloroform	67663	Diallate	2303164
Chloromethyl methyl ether	107302	Diazinon	333415
2-Chloronaphthalene	91587	Dibenzo[a,h]anthracene	53703
2-Chlorophenol	95578	1,2-Dibromo-3-chloropropane	96128
I-Chlorophenyl phenyl ether	7005723	DibutyInitrosoamine	924163
-Chloropropionitrile	542767	Di-n-butyl phthalate	84742
Chlorosulfonic acid	7790945	Dicamba	1918009
I-Chloro-o-toluidine, hydrochloride	3165933	Dichlobenil	1194656
	2921882	Dichlone	117806
Chlorpyrifos	1066304	Dichlorobenzene	25321226
Chromic acetate		1,2-Dichlorobenzene	95501
Chromic acid	11115745	1,3-Dichlorobenzene	541731
Chromic sulfate Chromium	10101538 7440473	1,4-Dichlorobenzene	106467
111111711111111	/ <del>44</del> U4/ <b>3</b>	1,7-DICHOUDEHACHC	100707

Appendix A—Hazardous Substances

Hazardous Substance	CAS Number	Hazardous Substance	CAS Number
Dichlorobromomethane	75274	2,4-Dinitrotoluene	121142
1,4-Dichloro-2-butene	764410	2,6-Dinitrotoluene	606202
Dichlorodifluoromethane	75718	Dinoseb	88857
1,1-Dichloroethane	75343	Di-n-octyl phthalate	117840
1,2-Dichloroethane	107062	1,2-Diphenylhydrazine	122667
1,1-Dichloroethylene	75354	Diphosphoramide,	152169
1,2-Dichloroethylene	156605	octamethyl-	
Dichloroethyl ether	111444	Diphosphoric acid, tetraethyl ester	107493
Dichloroisopropyl	108601	Dipropylamine	142847
Dichloromethoxyethane	111911	Di-n-propylnitrosamine	621647
Dichloromethyl ether	542881	Diquat	85007
2,4-Dichlorophenol	120832	Disulfoton	298044
2,6-Dichlorophenol	87650	Dithiobiuret	541537
Dichlorophenylarsine	696286	1,3-Dithiolane-2-	26419738
Dichloropropane	26638197	carboxaldehyde, 2,4-dimethyl-,	
1,1-Dichloropropane	78999	O-[(methylamino)	
1,3-Dichloropropane	142289	carbonyl]oxime (Tirpate)	
1,2-Dichloropropane	78875	Diuron	330541
Dichloropropane	8003198	Dodecylbenzenesulfonic acid	27176870
Dichloropropene	26952238	Endosulfan	115297
2,3-Dichloropropene	78886	alpha-Endosulfan	959988
1,3-Dichloropropene	542756	beta-Endosulfan	33213659
2,2-Dichloropropionic acid	75990	Endosulfan sulfate	1031078
Dichlorvos	62737	Endothall	145733
Dicofol	115322	Endrin & metabolites	72208
Dieldrin	60571	Endrin aldehyde	7421934
Diethylamine	109897	Epichlorohydrin	106898
Diethylarsine	692422	Epinephrine	51434
1,4-Diethylenedioxide	123911	Ethanimidiothioic acid, 2-	30558431
O,O-Diethyl S-methyl dithiophosphate	3288582	(dimethylamino-N-hydroxy-2-oxo-,	
Diethyl-p-nitrophenyl phosphate	311455	methyl ester (A2213)	
Diethyl-o-phthalate	84662	Ethanimidiothioic acid, 2-	23135220
O,O-Diethyl O-pyrazinyl	297972	(dimethylamino)-N-[[(methylamino	
phosphorothioate	237 37 2	carbonyl]oxy]-2-oxo-, methyl	,
Diethylstilbestrol	56531	ester (Oxamyl)	
Dihydrosafrole	94586	Ethanimidothioic acid, N,N'-	59669260
Diisopropylfluorophosphate	55914	[thiobis[(methylimino)	5,00,02,00
3,3'-Dimethoxybenzidine	119904	carbonyloxy]] bis-,	
Dimethylamine	124403	dimethyl ester (Thiodicarb)	
o-Dimethylamino-azobenzene	60117	Ethanol, 2,2'-oxybis-,	5952261
3,3'-Dimethylbenzidine	119937	dicarbamate (Diethylene	3332201
1,1-Dimethylhydrazine	57147	glycol, dicarbamate)	
1,2-Dimethylhydrazine	540738	Ethion	563122
alpha,alpha-	122098	Ethyl acetate	141786
Dimethylphenethylamine	122030		140885
2,4-Dimethylphenol	105679	Ethyl acrylate Ethylbenzene	100414
	131113		51796
Dimethyl phthalate Dimethyl sulfate	77781	Ethyl carbamate	107120
•	25154545	Ethyl cyanide Ethylenebisdithiocarbamic	111546
Dinitrobenzene (mixed)			111340
n-Dinitrobenzene	99650	acid, salts & esters	107153
o-Dinitrobenzene	528290 100254	Ethylenediamine	107153
p-Dinitrobenzene		Ethylenediamine-	60004
l,6-Dinitro-o-cresol and salts	534521	tetraacetic acid (EDTA)	10002
Dinitrophenol	25550587	Ethylene dibromide	106934
,5-Dinitrophenal	329715	Ethylene glycol	110805
,6-Dinitrophenol	573568	monoethyl ether	3504
,4-Dinitrophenol	51285	Ethylene oxide	75218
Dinitrotoluene	25321146	Ethylenethiourea	96457
,4-Dinitrotoluene	610399	Ethylenimine	151564

# Appendix A—Hazardous Substances

Hazardous Substance C	AS Number	Hazardous Substance	CAS Numbe
Ethyl ether	60297	Lead acetate	301042
Ethyl methacrylate	97632	Lead arsenate	7784409
Famphur	52857	Lead chloride	7758954
Ferric ammonium citrate	1185575	Lead fluoborate	1381496
Ferric ammonium oxalate	2944674	Lead fluoride	778346
Ferric chloride	7705080	Lead iodide	1010163
Ferric fluoride	7783508	Lead nitrate	1009974
Ferric nitrate	10421484	Lead phosphate	744627
Ferric sulfate	10028225	Lead stearate	742848
Ferrous ammonium sulfate	10045893	Lead subacetate	133532
Ferrous chloride	7758943	Lead sulfate	1573980
Ferrous sulfate	7720787	Lead sulfide	131487
Fluoranthene	206440	Lead thiocyanate	59287
Fluorene	86737	Lithium chromate	1430735
Fluorine	7782414	Malathion	12175
Fluoroacetamide	640197	Maleic acid	11016
Fluoroacetic acid, sodium salt	62748	Maleic anhydride	10831
Formaldehyde	50000	Maleic hydrazide	12333
Formic acid	64186	Manganese dimethyldithiocarbamate	1533936
Fumaric acid	110178	Melphalan	14882
Furan	110009	Mercaptodimethur	203265
Furfural	98011	Mercuric cyanide	59204
Glauramine	492808	Mercuric nitrate	1004594
Glycidylaldehyde	765344	Mercuric sulfate	778335
Guanidine, N-methyl-N'-nitro-N-nitroso		Mercuric thiocyanate	59285
Guthion	86500	Mercurous nitrate	1041575
Heptachlor	76448	Mercury	743997
Heptachlor epoxide	1024573	Mercury fulminate	62886
Hexachlorobenzene	118741	Methacrylonitrile	12698
Hexachlorobutadiene	87683	Methanesulfonic acid, ethyl ester	6250
Hexachlorocyclohexane (all isomers)	608731	Methanimidamide,	2342253
	58899	N,N-dimethyl-N'-	2342233
Hexachlorocyclohexane	30033	[3-[[(methylamino)carbonyl]	
(gamma isomer - Lindane)	77474		
Hexachlorocyclopentadiene		oxylphenyl]-, monohydrochloride	1770257
Hexachloroethane	67721 70304	Methanimidamide, N,N-dimethyl-N'-	1//023/
Hexachlorophene			
Hexachloropropene	1888717	[2-methyl-4-[[(methylamino)	
lexaethyl tetraphosphate	757584	carbonyl]oxy]phenyl]-	(75)
lydrazine	302012	Methanol	6756
Hydrazine, 1,2-diethyl-	1615801	Methapyrilene	9180
lydrochloric acid	7647010	Methomyl	1675277
lydrocyanic acid	74908	Methoxychlor	7243
tydrofluoric acid	7664393	Methyl bromide	7483
lydrogen sulfide H <sub>2</sub> S	7783064	1-Methylbutadiene	50460
Hydroperoxide, 1-methyl-1-phenylethyl	80159	Methyl chloride	7487
ndeno(1,2,3-cd)pyrene	193395	Methyl chlorocarbonate	7922
on, tris	14484641	3-Methylcholanthrene	5649
(dimethylcarbamodithioato-S,S')-	<b>=</b> 0004	4,4'-Methylene(bis)chloroaniline	10114
sobutyl alcohol	78831	Methylene bromide	7495
sodrin	465736	Methylene chloride	7509
sophorone	78591	Methyl ethyl ketone (MEK)	7893
soprene	78795	Methyl ethyl ketone peroxide	133823
sopropanolamine	42504461	Methyl hydrazine	6034
dodecylbenzenesulfonate		Methyl iodide	7488
sosafrole	120581	Methyl isobutyl ketone	10810
(2H)-lsoxazolone, 5-(aminomethyl)-	2763964	Methyl isocyanate	62483
epone	143500	Methylmercaptan	7493
asiocarpine	303344	Methyl methacrylate	8062
.ead	7439921	Methyl parathion	29800

Appendix A—Hazardous Substances

Hazardous Substance	CAS Number	Hazardous Substance	CAS Number
Methylthiouracil	56042	Phenol, 3-methyl-5-	2631370
Mevinphos	7786347	(1-methylethyl)-, methyl	
Mexacarbate	315184	carbamate (Promecarb)	
Mitomycin C	50077	Phenylmercury acetate	62384
Monoethylamine	75047	Phenylthiourea	103855
Monomethylamine	74895	Phorate	298022
Naled	300765	Phosgene	75445
1-Naphthalenamine	134327	Phosphine	7803512
2-Naphthalenamine	91598	Phosphoric acid	7664382
Naphthalene	91203	Phosphorodithioic acid,	60515
1,4-Naphthalenedione	130154	O,O-dimethyl S-	
Naphthenic acid	1338245	[2(methylamino)-2-oxoethyl] ester	
alpha-Naphthylthiourea	86884	Phosphorus	7723140
Nickel	7440020	Phosphorus oxychloride	10025873
Nickel ammonium sulfate	15699180	Phosphorus pentasulfide	1314803
Nickel carbonyl	13463393	Phosphorus trichloride	7719122
Nickel chloride	<i>77</i> 18549	Phthalic anhydride	85449
Nickel cyanide Ni(CN) <sub>2</sub>	557197	Piperidine, 1-nitroso-	100754
Nickel hydroxide	12054487	Piperidine, 1,1'-	120547
Nickel nitrate	14216752	(tetrathiodicarbonothioyl)bis-	
Nickel sulfate	7786814	(Bis(pentamenthylene)thiuram	
Nicotine, & salts	54115	tetrasulfide)	4004040
Nitric acid	7697372	Polychlorinated biphenyls (PCBs)	1336363
p-Nitroaniline	100016	Aroclor 1016	12674112
Nitrobenzene	98953	Aroclor 1221	11104282
Nitrogen dioxide NO <sub>2</sub>	10102440	Aroclor 1232	11141165
Nitrogen oxide NO	10102439	Aroclor 1242	53469219
Nitroglycerine	55630	Aroclor 1248	12672296
Nitrophenol (mixed)	25154556	Aroclor 1254	11097691
m-Nitrophenol	554847	Aroclor 1260	11096825
o-Nitrophenol	88755	Potassium arsenate	7784410 10124502
p-Nitrophenol	100027	Potassium arsenite	7778509
2-Nitropropane	79469 1116547	Potassium bichromate Potassium chromate	7789006
N-Nitrosodiethanolamine	55185	1	151508
N-Nitrosodiethylamine N-Nitrosodimethylamine	62759	Potassium cyanide KCN Potassium hydroxide	1310583
N-Nitrosodiphenylamine	86306	Potassium permanganate	7722647
N-Nitrosouphenylanine N-Nitrosopyrrolidine	930552	Potassium silver cyanide	506616
Nitrotoluene	1321126	Pronamide Pronamide	23950585
m-Nitrotoluene	99081	1,3-Propane sultone	1120714
o-Nitrotoluene	88722	Propanedinitrile	109773
p-Nitrotoluene	99990	Propargite	2312358
5-Nitro-o-toluidine	99558	Propargyl alcohol	107197
Osmium tetroxide OsO <sub>4</sub>	20816120	Propionic acid	79094
Paraformaldehyde	30525894	Propionic anhydride	123626
Paraldehyde	123637	n-Propylamine	107108
Parathion	56382	Propylene oxide	75569
Pentachlorobenzene	608935	Pyrene	129000
Pentachloroethane	76017	Pyrethrins	121299
Pentachloronitrobenzene	82688	Pyridine	110861
Pentachlorophenol	87865	Pyridine, 2-methyl-	109068
Perchloroethylene	127184	Pyrrolo[2,3-b] indol-5-ol,	57476
Phenacetin	62442	1,2,3,3a,8,8a-hexahydro-1,3a,8-	
Phenanthrene	85018	trimethyl-, methylcarbamate	
Phenol	108952	(ester), (3aS-cis)-Physostigmine	
Phenol, 3-(1-methylethyl)-,	64006	Quinoline	91225
methyl carbamate (m-Cumenyl		Reserpine	50555
methylcarbamate)		Resorcinol	108463
•		Saccharin and salts	81072

## Appendix A—Hazardous Substances

Hazardous Substance	CAS Number	Hazardous Substance	CAS Number	
Safrole	94597	Thallium(I) acetate	563688	
Selenious acid	7783008	Thallium(I) carbonate	6533739	
Selenium	7782492	Thallium chloride TICI	7791120	
Selenium dioxide	7446084	Thallium(I) nitrate	10102451	
Selenium sulfide SeS,	7488564	Thallium oxide Tl,O,	1314325	
Selenourea <sup>*</sup>	630104	Thallium selenite 1 3	12039520	
Silver	7440224	Thallium(I) sulfate	7446186	
Silver cyanide AgCN	506649	2H-1,3,5-Thiadiazine-2-thione,	533744	
Silver nitrate	7761888	tetrahydro-3,5-dimethyl- (Dazome	et)	
Silvex (2,4,5-TP)	93721	Thioacetamide	62555	
Sodium	7440235	Thiofanox	39196184	
Sodium arsenate	7631892	Thioperoxydicarbonic diamide,	1634022	
Sodium arsenite	7784465	tetrabutyl (Tetrabutylthiuram disul	fide)	
Sodium azide	26628228	Thioperoxydicarbonic diamide,	97778	
Sodium bichromate	10588019	tetraethyl (Disulfiram)		
Sodium bifluoride	1333831	Thiophenol	108985	
Sodium bisulfite	7631905	Thiosemicarbazide	79196	
Sodium chromate	7775113	Thiourea	62566	
Sodium cyanide NaCN	143339	Thiourea, (2-chlorophenyl)-	5344821	
Sodium dodecyl-	25155300	Thiram	137268	
benzenesulfonate		Toluene	108883	
Sodium fluoride	7681494	Toluenediamine	95807	
Sodium hydrosulfide	16721805	Toluene diisocyanate	584849	
Sodium hydroxide	1310732	o-Toluidine	95534	
Sodium hypochlorite	7681529	p-Toluidine	106490	
Sodium methylate	124414	o-Toluidine	636215	
Sodium nitrite	7632000	hydrochloride		
Sodium phosphate, dibasic	7558794	Toxaphene	8001352	
Sodium phosphate, tribasic	7601549	2,4,5-TP esters	32534955	
Sodium selenite	10102188	Trichlorfon	52686	
Streptozotocin	18883664	1,2,4-Trichlorobenzene	120821	
Strontium chromate	7789062	1,1,1-Trichloroethane	71556	
Strychnine, & salts	57249	1,1,2-Trichloroethane	79005	
Styrene	100425	Trichloroethene (Trichloroethylene)	79016	
Sulfur monochloride	12771083	Trichloromethanesulfenyl chloride	594423	
Sulfuric acid	7664939	Trichloromonofluoromethane	75694	
2,4,5-T acid	93765	Trichlorophenol	25167822	
2,4,5-T amines	2008460	2,3,4-Trichlorophenol	15950660	
., 1,5 T armines	1319728	2,3,5-Trichlorophenol	933788	
	3813147	2,3,6-Trichlorophenol	933755	
	6369966	3,4,5-Trichlorophenol	609198	
	6369977	2,4,5-Trichlorophenol	95954	
2,4,5-T (n-butyl) esters	93798	2,4,6-Trichlorophenol	88062	
, i,s i (ii butyi) esters	1928478	Triethanolamine	27323417	
	2545597	dodecylbenzenesulfonate	2,323	
sooctyl	25168154	Triethylamine	121448	
Methylpropyl	61792072	Trimethylamine	75503	
,4,5-T salts	13560991	1,3,5-Trinitrobenzene	99354	
,2,4,5-Tetrachlorobenzene	95943	Tris(2,3-dibromopropyl)phosphate	126727	
,3,7,8-Tetrachloro-	1746016	Trypan blue	72571	
dibenzo-p-dioxin (TCDD)	17 70010	Uracil mustard	66751	
,1,1,2-Tetrachloroethane	630206	Uranyl acetate	541093	
,1,2,2-Tetrachloroethane	79345	Uranyl nitrate	10102064	
,3,4,6-Tetrachlorophenol	58902	Urea, N-ethyl-N-nitroso-	759739	
etraethyllead	78002	Urea, N-methyl-N-nitroso-	684935	
			1314621	
etraethyldithiopyrophosphate	3689245	Vanadium pentoxide	27774136	
etrahydrofuran etranitromethane	109999	Vanadyl sulfate Vinyl chloride	75014	
euamnomemane	509148	i vinvi chionae	/5014	

Appendix A—Hazardous Substances

Hazardous Substance	CAS Number	Hazardous Substance	CAS Number
Vinylamine, N-methyl-N-nitroso-	4549400	Zinc cyanide Zn(CN),	557211
Warfarin, and salts, when present at	81812	Zinc fluoride	7783495
concentrations greater than 0.3%		Zinc formate	557415
Xylene (mixed)	1330207	Zinc hydrosulfite	7779864
Xylenol	1300716	Zinc nitrate	7779886
Zinc	7440666	Zinc phenolsulfonate	127822
Zinc acetate	557346	Zinc phosphide Zn <sub>3</sub> P <sub>3</sub> ,	1314847
Zinc ammonium chloride	52628258	when present at concentrations	
Zinc, bis(dimethyl	137304	greater than 10%	
carbomodithioato-S,S')- (Ziram)		Zinc silicofluoride	16871719
Zinc, bis(diethylcarbamo	14324551	Zinc sulfate	7733020
dithioato-S,S')- (Ethyl Ziram)		Zirconium nitrate	13746899
Zinc borate	1332076	Zirconium potassium fluoride	16923958
Zinc bromide	7699458	Zirconium sulfate	14644612
Zinc carbonate	3486359	Zirconium tetrachloride	10026116
Zinc chloride	7646857		

# Ignitable Solids

(30 TAC Chapter 335 Subchapter R Appendix 1 Table 2)

Constituents listed from Department of Transportation Regulations, 49 CFR Part 173 Subpart E, October 1, 1993. Note: The presence of a constituent on this table in a nonhazardous waste does not automatically identify that waste as a Class 1 ignitable waste. The constituents on this table are examples of materials which could be considered Class 1 ignitable waste. The physical characteristics of the waste will be the determining factor as to whether or not a waste is ignitable. Refer to 30 TAC §335.505(2) (relating to Class 1 Waste Determination) for the Class 1 ignitable criteria.

Compound or Material	Compound or Material		
Aluminum, metallic, powder	Calcium silicide		
Alkali metal amalgams	Camphor, synthetic		
Alkali metal amides	Carbon, activated		
Aluminum alkyl halides	Celluloid		
Aluminum alkyl hydrides	Cerium		
Aluminum alkyls	Cesium metal		
Aluminum borohydrides	Chromic acid or chromic acid mixture, dry		
Aluminum carbide	Cobalt naphthenates, powder		
Aluminum ferrosilicon powder	Cobalt resinate		
Aluminum hydride	Decaborane		
Aluminum phosphide	2-Diazo-1-naphthol-4-sulphochloride		
Aluminum resinate	2-Diazo-1-naphthol-5-sulphochloride		
Aluminum silicon powder	2,5-Diethoxy-4-morpholinobenzene-		
Ammonium picrate	diazonium zinc choride		
2,2'-Azodi(2,4-dimethyl-4-methoxyvaleronitrile)	Diethylzinc		
2, 2'-Azodi(2,4-dimethylvaleronitrile)	4-Dimethylamino-6-(2-dimethyaminoethoxy)-		
1, 1' Azodi(hexahydrobenzonitrile)	toluene-2-diazonium zinc chloride		
2,2'-Azodi(2-methyl-butryronitrile)	Dimethylzinc		
Azodiisobutryonitrile	Dinitrophenolates		
Barium, metallic	Dinitroresorcinol		
Barium alloys, pyrophoric	N,N'-Dinitroso-N,N'-dimethylterephthalamide		
Barium azide	N,N'-Dinitrosopentamethylenetetramine		
Benzene-1,3-disulfohydrazide	Diphenyloxide-4,4'-disulfohydrazide		
Benzene sulfohydrazide	Dipicryl sulfide		
4-(Benzyl(ethly)amino)-3-ethoxy-	4-Dipropylaminobenzenediazonium zinc chloride		
benzenediazonium zinc chloride	Ferrocerium		
4-(Benzyl(methyl)amino)-3-ethoxy-	Ferrosilicon		
benzenediazonium zinc chloride	Ferrous metal		
Borneol	Hafnium powder		
Boron trifluoride dimethyl etherate	Hexamine		
5-tert-Butyl-2,4,6-trinitro-m-xylene	Hydrides, metal		
Calcium, metallic	3-(2-Hydroxyethoxy)-4-pyrrolidin-1-		
Calcium carbide	ylbenzenediazonium zinc chloride		
Calcium chlorite	Iron oxide, spent		
Calcium cyanamide	Isosorbide dinitrate mixture		
Calcium dithionite	Lead phosphite, dibasic		
Calcium hypochlorite	Lithium acetylide-ethylene diamine complex		
Calcium manganese silicon	Lithium alkyls		
Calcium silicon powder	Lithium aluminum hydride		
Calcium phosphide	Lithium amide, powdered		
Calcium pyrophoric	Lithium borohydride		
Calcium resinate	Lithium ferrosilicon		

# Appendix B—Ignitable Solids

Compound or Material	Compound or Material	
Lithium hydride	Silicon powder, amorphous	
Lithium metal	Silver picrate	
Lithium nitride	Sodium, metallic	
Lithium silicon	Sodium aluminum hydride	
Magnesium granules	Sodium amide	
Magnesium aluminum phosphide	Sodium borohydride	
Magnesium diamide	Sodium chlorite	
Magnesium phosphide	Sodium2-diazo-1-naphthol-4-sulphonate	
Magnesium silicide	Sodium2-diazo-1-naphthol-5-sulphonate	
Maneb	Sodium dichloro-s-triazinetrione	
Manganese resinate	Sodium dinitro-ortho-cresolate	
Methyl magnesium bromide	Sodium hydride	
Methyldichlorosilane	Sodium hydrosulfite	
Mono-(trichloro)tetra(monopotassium dichloro)-	Sodium methylate	
penta-s-triazinetrione	Sodium nitrite and mixtures	
N-Methyl-N'-nitronitrosoguanidine	Sodium picramate, wet	
Naphthalene	Sodium potassium alloys	
Nitrocellulose mixtures	Sodium sulfide, anhydrous	
Nitroguanidine	Stannic phosphide	
p-Nitrosodimethylaniline	Strontium phosphide	
Paraformaldehyde	Sulfur	
Pentaborane	Titanium metal powder	
Peratic acid	Titanium hydride	
Phosphorous, amorphous, red	Trichloroisocyanuric acid	
Phosphorous, white or yellow	Trichlorosilane	
Phosphoric anhydride	Trichloro-s-triazinetrione	
Phosphorous pentachloride	Trinitrobenzoic acid	
Phosphorus pentasulfide	Trinitrophenol	
Phosphorus sesquisulfide	Trinitrotoluene	
Phosphorus trisulfide	Urea nitrate	
Picric acid	Zinc ammonium nitrite	
Potassium, metallic	Zinc phosphide	
Potassium dichloro-s-triazinetrione	Zinc powder	
Potassium borohydride	Zinc resinate	
Potassium dithionite	Zirconium hydride, powdered	
Potassium phosphide	Zirconium picramate	
Potassium sulfide, anhydrous	Zirconium powder	
Rubidium metal	Zirconium scrap	

Appendix C

# Class 1 Toxic Constituents' Maximum Leachable Concentrations

(30 TAC Chapter 335 Subchapter R Appendix 1 Table 1)

Applicability: Class 1, 2, and 3 Waste Evaluations

Values are based on information contained in Federal Registers Vol. 55 / Friday, July 27, 1990; Vol. 56 / June 7, 1991; and Integrated Risk Information Systems, Environmental Protection Agency, and 40 CFR 264 Appendix 9.

		Concent-			Concent-
Compound	CAS No.	ration (mg/l)	Compound	CAS No.	ration (mg/l)
Acenaphthene	83-32-9	210	3,3-Dichlorobenzidine	91-94-1	0.8
Acetone	67-64-1	400	1,2-Dichloroethane	107-06-2	0.50
Acetonitrile	75-05-8	20	Dichlorodifluoromethane	<i>75-71-</i> 8	700
Acetophenone	98-86 <b>-</b> 2	400	1,1-Dichloroethylene	75-35-4	0.6
Acrylamide	<i>7</i> 9-06 <b>-</b> 1	0.08	1,3-Dichloropropene	542-75-6	1
Acrylonitrile	107-13-1	0.6	2,4-Dichlorophenol	120-83-2	10
Aniline	62-53-3	60	2,4-Dichlorophenoxy-	94 <b>-</b> 75-7	10.0
Anthracene	120-12-7	1050	acetic acid (2,4-D)		
Antimony	7440-36-0	1	Dieldrin	60-57-1	0.02
Arsenic	7440-38-2	1.8	Diethyl phthalate	84-66-2	3000
Barium	7440-39-3	100.0	Dimethoate	60-51-5	70
Benzene	71-43-2	0.50	2,4-Dimethyphenol	105-67-9	70
Benzidine	92-87-5	0.002	2,6-Dimethyphenol	576-26-1	21
Beryllium	7440-41-7	0.08	m-Dinitrobenzene	99-65-0	0.4
Bis(2-chloroethyl) ether	111-44-4	0.3	2,4-Dinitrophenol	51-28-5	フ
Bis(2-ethylhexyl) phthalate	117-81-7	30	2,4-Dinitrotoluene	602-01-7	0.13
Bromodichloromethane	75-27-4	0.3	(and 2,6-, mixture)		
Bromomethane	74-83-9	5	Dinoseb	88-85-7	3.5
Butylbenzyl phthalate	85-68-7	700	1,4-Dioxane	123-91-1	30
Cadmium	7440-43-9	0.5	Dioxins (Polychlorinated di	benzo-p-dioxin	s)
Carbon disulfide	75-15-0	400	2,3,7,8-TCDD	1746-01-6	0.005
Carbon tetrachloride	56-23-5	0.50	1,2,3,7,8-PeCDD	40321-76-4	0.010
Chlordane	57-74-9	0.03	1,2,3,4,7,8-HxCDD	57653-85-7	0.050
Chlorobenzene	108-90-7	70	1,2,3,6,7,8-HxCDD	34465-46-8	0.050
Chloroform	67-66-3	6.0	1,2,3,7,8,9-HxCDD		0.050
Chloro-m-cresol, p	59-50-7	7000	Diphenylamine	122-39-4	90
2-Chlorophenol	95-57-8	20	1,2-Diphenylhydrazine	122-66-7	0.4
Chromium	7440-47-3	5.0	Disulfoton	298-04-4	0.1
m-Cresol	108-39-4	200.0*	Endosulfan	959-98-8	0.2
o-Cresol	95-48-7	200.0*	Endrin	72-20-8	.02
p-Cresol	106-44-5	200.0*	2-Ethoxyethanol	10-80-5	1400
DDD	72-54-8	1	Ethylbenzene	100-41-4	400
DDE	72-55-9	1	Ethylene dibromide	106-93-4	0.004
DDT	50-29-3	1	Ethylene glycol	107-21-1	7000
Dibutyl phthalate	84-74-2	400	Fluoranthene	206-44-0	140
1,4-Dichlorobenzene	106-46-7	7.5	Fluorene	86-73-7	140

Appendix C — Class 1 Toxic Constituents'
Maximum Leachable Concentrations (MCLs)

Compound	CAS No.	Concent- ration (mg/l)	Compound	CAS No.	Concent- ration (mg/l)
Furans (Polychlorinated dibe	enzofurans)		p-Phenylenediamine	106-50-3	20
2,3,7,8-TCDF	51207-31-9	0.050	Parathion	56-38-2	20
1,2,3,7,8-PeCDF		0.100	Pentachlorobenzene	608-93-5	3
2,3,4,7,8-PeCDF		0.010	Pentachloronitrobenzene	82-68-8	10
1,2,3,4,7,8-HxCDF		0.050	Pentachlorophenol	87-86-5	100.0
1,2,3,6,7,8-HxCDF		0.050	Phenol	108-95-2	2000
1,2,3,7,8,9-HxCDF		0.050	Pronamide	23950-58-5	300
Heptachlor	76-44-8	0.008	Pyrene	129-00-0	5.9
Heptachlor epoxide	1024-57-3	0.04	Pyridine	110-86-1	4
Hexachlorobenzene	118-74-1	0.13	Selenium	7782-49-2	1.0
Hexachloro-1,3-butadiene	87-68-3	0.4	Silver	7440-22-4	5.0
Hexachlorocyclopentadiene	77-47-4	20	Styrene	100-42-5	700
Hexachloroethane	67-72-1	3.0	1,1,1,2-Tetrachloroethane	630-20-6	10
Hexachlorophene	70-30-4	1	1,1,2,2-Tetrachloroethane	79-34-5	2
Isobutyl alcohol	78-83-1	1000	Tetrachloroethylene	127-18-4	0.7
Isophorone	78-59-1	90	2,3,4,6-Tetrachlorophenol	58-90-2	100
Lead	7439-92-1	1.5	Toluene	108-88-3	1000
Lindane	58 <b>-</b> 89-9	0.3	Toxaphene	8001-35-2	0.3
Mercury	7439-97-6	0.2	trans-1,3-Dichloropropene	542 <i>-</i> 75-6	1
Methacrylonitrile	126-98 <b>-</b> 7	0.4	Tribromomethane	75-25-2	70
Methomyl	16752-77-5	90	(Bromoform)		
Methoxychlor	72-43-5	10.0	1,2,4-Trichlorobenzene	120-82-1	70
2-Methoxyethanol	109-86-4	14.0	1,1,1-Trichloroethane	71-55-6	300
Methyl ethyl ketone	78-93-3	200.0	Trichloroethylene	79-01-6	0.5
Methyl isobutyl ketone	108-10-1	200	1,1,2-Trichloroethane	79-00-5	6
Methylene chloride	75-09-2	50	Trichlorofluoromethane	<b>7</b> 5-69-4	1000
Methyl parathion	298-00-0	0.9	2,4,5-Trichlorophenoxy-	93-72-1	1.0
Mirex	2385-85-5	0.7	propionic acid		
Nickel	7440-02-0	70	(2,4,5-TP or Silvex)		
Nitrobenzene	98-95-3	2.0	1,2,3-Trichloropropane	96-18-4	20
N-Nitroso-di-n-butylamine	924-16-3	0.06	2,4,5-Trichlorophenol	95-95-4	400.0
N-Nitrosodiphenylamine	86-30-6	70	2,4,6-Trichlorophenol	88-06-2	2
N-Nitrosomethylethylamine	10595-95-6	0.02	Vanadium pentoxide	1314-62-1	30
N-Nitroso-n-propylamine	621-64-7	0.05	Vinyl chloride	75-01-4	0.2
N-Nitrosopyrrolidine	930-55-2	0.2	Xylenes (all isomers)	1330-82-1	7000

<sup>\*</sup> If o-, m-, and p-cresol concentrations cannot be differentiated, the total cresol concentration is used. The Maximum Concentration for total cresol is 200.0 mg/l.

Appendix D

# 7-Day Distilled Water Leachate Test's Maximum Contaminant Levels

(30 TAC Chapter 335 Subchapter R APPENDIX 1 Table 3)

Applicability: Class 3 Waste Evaluations

Values obtained from 40 Code of Federal Regulations Part 141, Subparts B and G, Maximum Contaminant Levels and 40 Code of Federal Regulations Part 143, Total Dissolved Solids.

Constituent	MCL (mg/l)
Arsenic	0.05
Barium	1
*Benzene	0.005
Cadmium	0.005
*Carbon tetrachloride	0.005
Chlordane	0.002
*Chlorobenzene	0.1
Chromium	0.1
2,4-D	0.07
*Dibromochloropropane	0.0002
*ortho-Dichlorobenzene	0.6
*para-Dichlorobenzene	0.075
*1,2-Dichloroethane	0.005
*1,1-Dichloroethylene	0.007
*trans-1,2-Dichloroethylene	0.1
*1,2-Dichloropropane	0.005
*Ethylbenzene	0.7
Heptachlor	0.0004
Heptachlor epoxide	0.0002
Lead	0.05
Mercury	0.002
Methoxychlor	0.04
Pentachlorophenol	0.001
Selenium	0.05
Silver	0.05
*Styrene	0.1
*Tetrachloroethylene	0.005
*1,1,1-Trichloroethane	0.20
*Trichloroethylene	0.005
*Toluene	1
Toxaphene	0.003
2,4,5-TP (Silvex)	0.05
*Vinyl chloride	0.002
*Xylenes (total)	10
Total dissolved solids	500

<sup>\*</sup> For a Class 3 waste classification, these constituents must also be evaluated using the test methods described in 40 Code of Federal Regulations, Part 261, Appendix II. See §335.507 (4) (A) (ii) for additional information.

# Class 1 Toxic Constituents

(other than those identified in Appendix C, and their Estimated Quantitation Limits [EQLs])

#### Applicability: Class 3 Waste Evaluations

This table is to be utilized by the generator in evaluating detection limits for the identified constituents. The EQLs in this table are defined as the lowest detectable levels that can be reliably achieved using the Toxicity Characteristic Leaching Procedure (TCLP) at the time of the printing of this guideline. Applicable EPA method numbers are provided and can be found in EPA Report SW-846 "Test Methods for Evaluating Solid Waste" except where noted. Please note that more than one test method may be available for a particular constituent. Synonyms are provided in brackets "[]".

Acetone Acetonitrile	0.2 0.01 0.02 0.1 0.1 0.1 0.001	8100 8270 8250 8240 8015	Chloroform p-Chloro-m-cresol	0.0005 0.005	8010 8240
Acetone	0.02 0.1 0.1 0.1	8250 8240	p-Chloro-m-cresol		8240
	0.1 0.1 0.1	8240	p-Chloro-m-cresol	0.005	Q= 10
	0.1 0.1		· .	0.005	8040
Acetonitrile	0.1	8015		0.02	8270
			2-Chlorophenol	0.003	8040
[Methyl cyanide]	0.001	8030	[o-Chlorophenol]	0.01	8270
Acetophenone	0.001	8250	m-Cresol	0.01	8270
•	0.01	8270	o-Cresol	0.01	8270
Acrylamide	0.005	8015	p-Cresol	0.01	8270
Acrylonitrile	0.005	8030	DDD [Dichlorodiphenyl-	0.0001	8080
[Vinyl cyanide]	0.005	8240	dichloroethane	0.028	8250
Anthracene	0.2	8100		0.01	8270
	0.02	8250	DDE [Dichlorodiphenyl-	0.00004	8080
	0.01	8270	ethylene]	0.056	8250
Aniline	0.01	8250	' '	0.01	8270
[Benzyl amine]	0.01	8270	DDT [Dichlorodiphenyl-	0.0001	8080
Antimony	0.2	204	trichloroethane]	0.047	8250
,	0.3	6010		0.01	8270
	2.0	7040	Dibutyl phthalate	0.005	8060
	0.03	7041	Dibaty: priorate	0.01	8270
	2.0	7000A	1,4-Dichlorobenzene	0.004	8010
Benzidine [Dianiline]	0.44	8250	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	0.003	8020
Beryllium	**	210		0.013	8120
,	0.003	6010		0.01	8270
	0.05	7090	3,3-Dichlorobenzidine	0.02	8270
	0.002	7091	5,5 5,6,0,6,056,12,0,0,6		
	0.05	7000A	Dichlorodifluoromethane	0.01	8010
Bis(2-chloroethyl) ether	0.057	8250	2 iomeroum do omediano	0.005	8240
[Dichloroethyl ether]	0.01	8270	1,3-Dichloropropene	0.003	8010
Bis(2-ethylhexyl)	0.02	8060	1,5 Etemoropropene	0.005	8240
phthalate	0.25	8250	2,4-Dichlorophenol	0.05	8040
printalace	0.01	8270	2,1 Bremorophenor	0.01	8270
Bromodichloromethane	0.001	8010	Dieldrin	0.00002	8080
Di di il di di il	0.005	8240	Dictariii	0.01	8270
Bromomethane	0.003	8010	Diethyl phthalate	0.005	8060
[Methylbromide]	0.003	8240	Diediyi piralalate	0.005	8270
Butylbenzyl phthalate	0.005	8060	Dimethoate	0.02	8270
[Benzylbutyl phthalate]	0.005	8250	2,4-Dimethylphenol	0.003	8040
[Benzylbutyl phalatate]	0.023	8270	2,1-Difficulty priction	0.003	8270
Carbon disulfide [CS <sub>2</sub> ]	0.005	8240	2,6-Dimethylphenol	**	**

Appendix E-Class 1 Toxic Constituents

Constituent	EQL (mg/l)	Method(s)	Constituent	EQL (mg/l)	Method(s)
m-Dinitrobenzene	0.01	8270	2-Methoxyethanol	**	**
2,4-Dinitrophenol	0.13	8040	Methyl ethyl ketone [MEK]	0.01	8015
•	0.05	8270	, ,	0.1	8240
2,4-Dinitrotoluene	0.0002	8090	Methyl isobutyl ketone [MIBK]	**	8015
(and 2,6-, mixture)	0.01	8270	,	0.005	8240
Dinoseb	0.007	8150	Methylene chloride	0.005	8010
	0.02	8270	[Dichloromethane]	0.005	8240
1,4-Dioxane	0.15	8015	Methyl parathion	0.0003	8140
Dioxins (Polychlorinated dibe	enzo-p-dioxii	ns)		0.01	8270
2,3,7,8-TĆDD	0.000005	8280	Mirex	**	**
1,2,3,7,8-PeCdd	0.00001	8280	Nickel	0.04	249
1,2,3,4,7,8-HxCDD	0.00001	8280		0.05	6010
1,2,3,6,7,8-HxCDD	0.00001	8280		0.4	7520
1,2,3,7,8,9-HxCDD	0.00001	8280		0.04	7000A
Diphenylamine	0.01	8270	Nitrobenzene	0.04	8090
1,2-Diphenylhydrazine	0.2	1625		0.01	8250
Disulfoton	0.002	8140		0.01	8270
	0.01	8270	N-Nitroso-di-n-butylamine	0.01	8270
Endosulfan	0.0001	8080	N-Nitrosodiphenylamine	0.01	8270
	0.056	8250	N-Nitrosomethylethylamine	0.02	8270
Endrin	0.00006	8080	N-Nitroso-n-propylamine	0.01	8270
	0.01	8250	N-Nitrosopyrrolidine	0.01	8270
2-Ethoxyethanol	**	**	p-Phenylenediamine	0.01	8270
Ethylene dibromide [EDB]	0.5	6231	Parathion	0.01	8270
(Standard Methods for Examir	nation			0.0003	8140
of Water and Wastewater)			Pentachlorobenzene	0.02	8270
Ethylene glycol	**	**	Pentachloronitrobenzene	0.01	8270
Fluoranthene	0.2	8100	Phenol	0.001	8040
	0.01	8270		0.01	8270
Fluorene	0.2	8100	Pronamide	0.01	8270
	0.01	8270	Pyrene	0.2	8100
Furans (Polychlorinated diber	zofurans)		,	0.01	8270
2,3,7,8-TCDF	0.00001	8280	Pyridine	0.005	8240
1,2,3,7,8-PeCDF	0.00001	8280	· · ·	0.01	8270
2,3,4,7,8-PeCDF	0.00001	8280	1,1,1,2-Tetrachloroethane	0.005	8010
1,2,3,4,7,8-HxCDF	0.00001	8280	, , ,	0.005	8240
1,2,3,6,7,8-HxCDF	0.00001	8280	1,1,2,2-Tetrachloroethane	0.0003	8010
1,2,3,7,8,9-HxCDF	0.00001	8280	,,,	0.005	8240
Hexachlorobenzene	0.0005	8120	2,3,4,6-Tetrachlorophenol	0.01	8270
•	0.0	8270	trans-1,3-Dichloropropene	0.0034	8010
Hexachloro-1,3-butadiene	0.0034	8120	• •	0.005	8240
,	0.01	8270	Tribromomethane [Bromoform]		8010
Hexachlorocyclopentadiene	0.004	8120		0.005	8240
.,	0.01	8270	1,2,4-Trichlorobenzene	0.01	8270
-lexachloroethane	0.0003	8120	1,1,2-Trichloroethane	0.0002	8010
	0.01	8270	[1,1,2-TCE]	0.005	8240
-lexachlorophene	0.05	8270	Trichlorofluoromethane	0.01	8010
sobutyl alcohol	0.05	8015	[Freon 11]	0.005	8240
sophorone	0.06	8090	1,2,3-Trichloropropane	0.01	8010
•	0.01	8270	- 1 1	0.005	8240
indane	0.00004	8080	2,4,5-Trichlorophenol	0.01	8270
	0.01	8250	2,4,6-Trichlorophenol	0.006	8040
	0.00004	608		0.01	8270
	0.01	625	Vanadium pentoxide	0.2	286
Methacrylonitrile	0.005	8015		0.08	6010
Methomyl	0.09	632		2.0	7910
- /				0.04	7911

<sup>\*</sup> If o-, m-, and p-cresol concentrations cannot be differentiated, the total cresol concentration is used.
\*\* This information not available at time of publication.

Appendix F

### 7-Day Distilled Water Leachate Test Procedure

30 TAC Chapter 335 Subchapter R Appendix 4)

Applicability: Class 3 Waste Evaluations

This test is intended only for dry, solid wastes, i.e., waste materials without any free liquids.

- 1. Place a 250 gram (dry weight) representative sample of the waste material in a 1500 milliliter Erlenmeyer flask.
- 2. Add 1 liter of deionized or distilled water into the flask and mechanically stir the material at a low speed for five (5) minutes.
- 3. Stopper the flask and allow to stand for seven (7) days.
- 4. At the end of seven (7) days, filter the supernatant solution through a 0.45 micron filter, collecting the supernatant into a separate flask.
- 5. Subject the filtered leachate to the appropriate analysis.

### Form Codes

(30 TAC Chapter 335 Subchapter R Appendix 3)

Applicability: All Waste

In determining a waste stream's form code, it is recommended that the generator first determine into which major category the waste stream fits (e.g. inorganic liquids). The generator should then review all the form code descriptors in that category to determine which code or codes best describe the generator's waste stream. The generator should then choose, from the narrowed-down list, a form code for the waste stream.

Form codes are fairly generic in their descriptions. It is possible that more than one form code may be applicable to a particular waste stream. Generators should assign the form code which best describes the waste stream. If more than one form code can "best describe" the waste stream, then the generator should choose one of those several codes.

Code	Waste Description	Code	Waste Description
	Lab Packs	113	Other aqueous waste with high dissolved solids
Lab Pac lab was	c <b>ks</b> — Lab packs of mixed wastes, chemicals, stes	114	Other aqueous waste with low dissolved solids
001	Lab packs of old chemicals only	115	Scrubber water
002	Lab packs of debris only	116	Leachate
003	Mixed lab packs	117	Waste liquid mercury
004	Lab packs containing acute hazardous wastes	119	Other inorganic liquids (Specify in Comments)
009	Other lab packs (Specify in Comments)	198	Nonhazardous photographic chemical wastes (inorganic)
		199	Brine solution that could also
	Liquids		bear the form code 113
and hig	nic Liquids — Waste that is primarily inorganic hly fluid (e.g., aqueous), with low suspended ic solids and low organic content	is highl	<b>c Liquids</b> — Waste that is primarily organic and y fluid, with low inorganic solids content and moderate water content
101	Aqueous waste with low solvents	201	Concentrated solvent-water solution
102	Aqueous waste with low other toxic organics	202	Halogenated (e.g., chlorinated) solvent
103	Spent acid with metals	203	Non-halogenated solvent
104	Spent acid without metals	204	Halogenated/non-halogenated
105	Acidic aqueous waste		solvent mixture
106	Caustic solution with metals but no cyanides	205	Oil-water emulsion or mixture
107	Caustic solution with metals and cyanides	206	Waste oil
108	Caustic solution with cyanides but no metals	207	Concentrated aqueous solution of other organics
109	Spent caustic	208	Concentrated phenolics
110	Caustic aqueous waste	209	Organic paint, ink, lacquer, or vanish
111	Aqueous waste with reactive sulfides	210	Adhesives or epoxies
112	Aqueous waste with other reactives (e.g., explosives)	211	Paint thinner or petroleum distillates

### Appendix G-Form Codes

Code	Waste Description	Code	Waste Description
212	Reactive or polymerizable organic liquids	395	Nonhazardous solids containing
219	Other organic liquids (Specify in Comments)		greater than or equal to (>) 500 ppm PCBs
296	Ethylene glycol based antifreeze	396	Nonhazardous electrical equipment/ devices containing greater than or equal to
297	Nonhazardous liquids containing		(>) 50ppm and less than (<) 500 ppm PCBs
	greater than or equal to (>) 50 and less than (<) 500 ppm PCBs	397	Nonhazardous electrical equipment/
298	Nonhazardous liquids containing greater		devices containing greater than or
	than or equal to (>) 500 ppm PCBs	398	equal to (>) 500 ppm PCBs  Nonhazardous soils containing greater
299	Nonhazardous photographic	390	than or equal to (>) 50 ppm and less
	chemical waste (organic)		than (<) 500 ppm PCBs
		399	Nonhazardous soils containing greater
	Solids		than or equal to (>) 500 ppm PCBs
(These	codes <b>do not</b> apply to pumpable waste.)	Organie	c Solids — Waste that is primarily organic and
Inorgan	nic Solids — Waste that is primarily	solid, w	ith low-to-moderate inorganic content and
inorgan	ic and solid, with low organic content and	water c	ontent; <b>not pumpable</b>
low-to-	moderate water content; not pumpable	401	Halogenated pesticide solid
301	Soil contaminated with organics	402	Non-halogenated pesticide solid
302	Soil contaminated with inorganics only	403	Solids resins or polymerized organics
303	Ash, slag, or other residue from incineration of wastes	404	Spent carbon
304	Other "dry" ash, slag, or thermal residue	405	Reactive organic solid
305	"Dry" lime or metal hydroxide	406	Empty fiber or plastic containers
	solids chemically "fixed"	407	Other halogenated organic solids (Specify in Comments)
306	"Dry" lime or metal hydroxide	409	Other non-halogenated organic solids
307	solids not "fixed"		(Specify in Comments)
308	Metal scale, filings, or scrap  Empty or crushed metal drums or containers	488	Wood debris
309	Batteries or battery parts, casings, cores	489	Petroleum contaminated solids
310	Spent solid filters or adsorbents	490	Sand blasting waste
311	Asbestos solids and debris	491	Dewatered biological treatment sludge
312	Metal-cyanide salts/chemicals	492	Dewatered sewage or other untreated biological sludge
313	Reactive cyanide salts/chemicals	493	Catalyst waste
314	Reactive sulfide salts/chemicals	494	Solids containing greater than
315	Other reactive salts/chemicals		or equal to (>) 50 ppm and less
316	Other metal salts/chemicals		than (<) 500 ppm PCBs
319	Other waste inorganic solids	495	Solids containing greater than or equal to (>) 500 ppm PCBs
388	(Specify in Comments) Empty or crushed glass containers	496	Electrical equipment/devices containing
389	Nonhazardous sandblasting waste		greater than or equal to (>) 50 ppm and
390	Nonhazardous concrete/cement/		less than (<) 500 ppm PCBs
-	construction debris	497	Electrical equipment/devices containing greater than or equal to (>) 500 ppm PCBs
391	Nonhazardous dewatered	498	Soil containing greater than
200	wastewater treatment sludge	.50	or equal to (>) 50 ppm and less
392	Nonhazardous dewatered air pollution control device sludge		than (<) 500 ppm PCBs
393	Catalyst waste	499	Soils containing greater than or equal to (>) 500 ppm PCBs
394	Nonhazardous solids containing	<u> </u>	or Equal to (>) 500 ppm (Cus
	greater than or equal to (>) 50 ppm and less than (<) 500 ppm PCBs		

### Appendix G-Form Codes

Code	Waste Description	Code	Waste Description	
(These	Sludges codes only apply to pumpable waste.)	695	Petroleum contaminated slu other than still bottoms and	
Inorganic Sludges — Waste that is primarily inorganic, with moderate-to-high water content and low organic		696 697 698	Grease Catalyst waste Nonhazardous sludges cont	
501 502 503	t, and <i>pumpable</i> Lime sludge without metals  Lime sludge with metals/metal hydroxide sludge  Wastewater treatment sludge	699	greater than or equal to (>) and less than (<) 500 ppm F Nonhazardous sludges cont than or equal to (>) 500 ppr	
504	with toxic organics Other wastewater treatment sludge		Gases	
505 506 507	Untreated plating sludge without cyanides Untreated plating sludge with cyanides Other sludge with cyanides	inorgan	nic Gases — Waste that is prinic ic with a low organic content atmospheric pressure	
508 509	Sludge with reactive sulfides Sludge with other reactives	701	Inorganic gases	
510 511	Degreasing sludge with metal scale or filings Air pollution control device sludge (e.g., fly ash, wet scrubber sludge)	with lov	c <b>Gases</b> — Waste that is prim w-to-moderate inorganic cont tmospheric pressure	
512	Sediment or lagoon dragout contaminated with organics	801	Organic gases	
513 514	Sediment or lagoon dragout contaminated with inorganics only Drilling mud		Plant Trash or to be considered for one of designations, a waste must firs	
515	Asbestos slurry or sludge		ng two criteria.	
516 519	Chloride or other brine sludge Other inorganic sludges (Specify in Comments)	that a p	e waste <b>must</b> be a Class 2 wa roper classification determina	
597	Catalyst waste	performed for each item which a fa as one of the plant refuse designate a Class 2 solely because it has bee plant refuse waste. Hazardous and not eligible for designation as one		
598	Nonhazardous sludges containing greater than or equal to (>) 50 ppm and less than (<) 500 ppm PCBs			
599	Nonhazardous sludges containing greater than or equal to (>) 500 ppm PCBs		, the waste must meet the par lant refuse term. For more int	

Organic Sludges — Waste that is primarily organic with low-to-moderate inorganic solids content and water content, and pumpable

- Still bottoms of halogenated (e.g., chlorinated) solvents or other organic liquids
- 602 Still bottoms on non-halogenated solvents or other organic liquids
- 603 Oily sludge
- 604 Organic paint or ink sludge
- Reactive or polymerizable organics 605
- 606 Resins, tars, or tarry sludge
- Biological treatment sludge 607
- Sewage or other untreated biological sludge 608
- 609 Other organic sludges (Specify in Comments)

- ludges d oily sludges
- ntaining 50 ppm **PCBs**
- ntaining greater om PCBs

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f the two plant rst meet the

aste. This means nation must be cility is considering ons. A waste is not designated as a Class 1 wastes are of the plant refuses.

articular definition of the plant refuse term. For more information on these terms, please refer to the terms listed in this table as well as the "Definitions" section which follows this table.)

- Supplemental plant production refuse any Class 2 waste from production, manufacturing, or laboratory operations as long as the total amount of the supplemental plant production refuse does not exceed twenty percent of the total plant trash (form code 999) volume or weight, whichever is less this could include, but is not limited to, such things as metal parts, floor sweepings, and off-specification materials
- 999 Plant Trash - any Class 2 waste originating in the facility offices, laboratory, plant production area or food services/cafeteria operations that is composed of paper, cardboard,

### Code Waste Description

linings, wrappings, paper and/or wooden packaging materials, uncontaminated food wastes and/or packaging, cafeteria wastes, glass, aluminum foil, aluminum cans, aluminum scrap, stainless steel, steel, iron scrap, plastics, styrofoam, rope, twine, uncontaminated rubber, uncontaminated wooden materials, equipment belts, wirings,

#### Code Waste Description

uncontaminated cloth, metal bindings, empty containers with a holding capacity of less than five gallons, uncontaminated floor sweepings, and personal cosmetics generated by facility personnel (does not include cosmetics generated as a result of manufacturing or plant production operations).

#### Form Code Definitions

The following are definitions of terms utilized in form codes:

Acidic - A material having a pH less than 7.0.

Alkaline - A material having a pH greater than 7.0.

**Aqueous** – A water solution containing organic and/or inorganic constituents dissolved in solution.

**Caustic** – A material which is corrosive or irritating to living tissue and has a pH greater than 7.

Inorganic – Chemicals that are not organic (i.e., water, carbon dioxide, carbon disulfide, iron, zinc, steel). Generally, if a waste is composed of more than 50% inorganic materials, it is considered an inorganic waste.

Organic – Chemicals composed primarily of carbon and hydrogen and their derivatives. (i.e. methylene chloride, benzene, petroleum products). In general, if a waste is composed of 50% or more organic materials, it is considered an organic waste.

**Plant Trash** – Includes the following Class 2 wastes which are produced as a result of plant production, manufacturing, laboratory, general office, cafeteria or food service operations; paper, cardboard, linings, wrappings, paper or wood packaging materials, food wastes, cafeteria wastes, glass, aluminum foil, aluminum cans, aluminum scrap, stainless steel, steel, iron scrap, plastics, styrofoam, rope, twine, uncontaminated rubber, uncontaminated wooden materials, equipment belts, wirings, uncontaminated cloth, metal bindings, empty containers with a holding capacity of less than five gallons, uncontaminated floor sweepings, and personal cosmetics generated by facility personnel (does not include cosmetics generated as a result of manufacturing or plant production operations). Please note that hazardous waste and Class 1 waste can not be designated as "plant office refuse". Plant trash shall not include oils, lubricants of any type, oil filters, contaminated soils, sludges, or wastewaters.

Examples of "plant trash" include Class 2 soda cans, lunch sacks, food scraps, envelopes, plastic binders, empty boxes, pallets, styrofoam shipping boxes, chemical container liners, shrink wrap, and broken glassware.

As another example, used typing paper from the secretarial area could be considered "plant trash" because it resulted from general office operations. (Please note that typing paper would normally be considered a Class 2 waste unless it were contaminated with something to cause it to be considered a hazardous or Class 1 waste. For example, if typing paper were used to clean up a spill of a F003 waste, it would be considered a hazardous waste.)

As another example, a Class 2 off-specification production chemical could not be considered "plant trash" because it does not meet the definition of a "plant trash". However, the Class 2 off-specification production chemical might be considered a "supplemental plant production refuse" as long as the weight/volume limits established for "supplemental plant production refuse" were not exceeded. (For more information on "supplemental plant production refuse" and weight/volume limits, please see "Supplemental Plant Production Refuse" in these definitions.

**Reactive** – A material is reactive if it is capable of detonation or explosive decomposition:

- 1. at standard temperature and pressure, or
- 2. if subjected to a strong ignition source, or
- 3. heated under confinement.

A material is also considered reactive if, when mixed with water it is:

- 1. potentially explosive, or
- 2. reacts violently, or
- 3. generates toxic gases or vapors (i.e. hydrogencyanide or hydrogensulfide).

#### Form Code Definitions

A material is also considered reactive if it is:

- 1. normally unstable and readily undergoes violent changes, or
- 2. a forbidden explosive (see 49 CFR §173.53), or
- 3. a Class B explosive (see 49 CFR §173.88).

**Solvent** – A liquid used to dissolve another material.

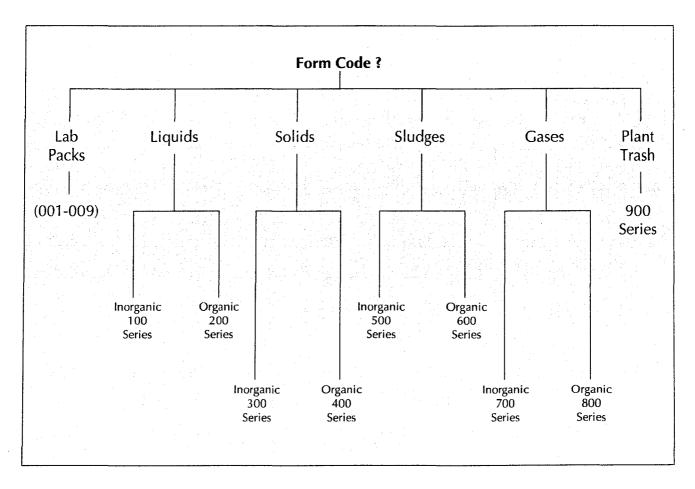
Supplemental Plant Production Refuse – Any Class 2 Waste from production, manufacturing, or laboratory operations can be designated as "supplemental plant production refuse" (form code 999) as long as the total amount of the supplemental plant production refuse does not exceed twenty percent of the total plant production refuse volume or weight, whichever is less.

Individual wastes which have been designated "supplemental plant production refuse" may be designated by the generator at a later time as a separate waste in order to maintain the "supplemental plant production refuse" at a level below 20% of the "plant trash" amount. For any waste stream so redesignated, the generator must provide the initial notification information required pursuant to 30 TAC Chapter 335.

Please note that hazardous waste and Class 1 waste can not be designated as "supplemental plant production refuse".

Examples of "supplemental plant production refuse" include Class 2 steel shavings, empty metal containers, aerosol cans, old chemicals, safety equipment, and machine parts.

Please note that when a site notifies the Commission that it generates "supplemental plant production refuse", it must include a list of those wastes which are expected to be included in the "supplemental plant production refuse" designation. If that list increases, the generator must notify the Commission of the additions to that list; otherwise, the Commission will not view the additions as "supplemental plant production refuse".



### Liquids

### Inorganic - 100 series

(Waste that is primarily inorganic and highly fluid, (e.g., aqueous), with low suspended solids and low organic content.)

#### Examples:

- 1. 99% water with 1% methanol 101
- 98% water with 2% methyl ethyl ketone MEK 102
- Waste sulfuric acid from plastics cleaning 104
- Water with 0.73% potassium permanganate
   114
- Leachate from landfills 116
- Waste photographic fixer 198

### Organic - 200 series

(Waste that is primarily organic and is highly fluid, with low inorganic solids and low-tomoderate water content.)

#### Examples:

- Solvent mixture 65% methylene chloride, 30% phenol, 5% cresol 204
- 2. 95% motor oil, 5% water emulsion 205
- 3. Used hydraulic oil 206
- 4. Unused varnish and organic paint 209
- 5. Waste ethylene glycol antifreeze 296

### Solids

### Inorganic - 300 series

(Waste that is primarily inorganic and solid, with low organic content and low-to-moderate water content; not pumpable.)

#### Examples:

- 1. Soil contaminated with naptha 301
- 2. Incinerator ash 303
- 3. Crushed RCRA empty metal drums 308
- 4. Lead acid batteries, chips and cores 309
- 5. Concrete, plaster and other construction debris **390**
- 6. Metalic catalyst waste 393

### Organic - 400 series

(Waste that is primarily organic and solid, with low-to-moderate inorganic and water content; **not pumpable.)** 

#### Examples:

- 1. Unused malathion pellets 402
- 2. Spent carbon from filters 404
- 3. Wooden house exterior debris 488
- 4. Paper contaminated with oil 489
- Sand blasting waste from petroleum tanks
   490
- 6. Dewatered sewage sludge 492

### Appendix G-Form Codes



### Inorganic - 500 series

(Waste that is primarily inorganic, with moderate-to-high water content, and low organic content, and pumpable.)

#### Examples:

- 1. Wastewater treatment sludge containing phenolics **503**
- Zinc plating wastewater sludge containing cyanide 506
- Sludge from pollution removal scrubber
   511
- 4. Sediment pond dragout contaminated with lead 513
- 5. Water based drilling mud with brine 514
- Waste metal catalyst with 0.89% organics

### Organic - 600 series

(Waste that is primarily organic, with moderateto-high water content, and low inorganic content, and pumpable.)

#### Examples:

- 1. Still bottoms from naptha recovery 602
- Ink and paint sludge from printing billboards 604
- Bioremediation sludge from oil spill cleanup 607
- 4. Motor repair facility sludge with grease 603
- 5. Refinery wastewater sludge with petroleum compounds **695**
- 6. Waste lubricating grease 696

### Lab Packs - 001-009 series

#### Examples:

- 1. Lab pack containing debris 002
- Lab pack containing old unused or partially used chemicals 001

### Plant Trash - 900 series

### **Examples:**

- 1. Office debris (i.e., paper, plastic, alluminum cans and fax paper) **999**
- Scrap plastic from molds of toys and souvenirs 902
- Packing debris from unpacking of raw materials 999

Appendix H

### Codes for Out-of-State Waste Generators and Receivers

Codes for States of the United States				Country Codes (in Order of Assigned Numbers)		
State or Country	Abbre- viation	Generator No.	Receiver No.	State or Country	Generator No.	Receiver No.
Alabama	AL	D0001	D0001	Navajo Nation	D0057	D0057
Alaska	AK	D0002	D0002	Puerto Rico	D0060	D0060
Arizona	ΑZ	D0004	D0004	Virgin Islands	D0066	D0066
Arkansas	AR	D0005	D0005	Guam	D0075	D0075
California	CA	D0006	D0006	American Samoa	D0083	D0083
Colorado	CO	D0008	D0008	Mexico	F0061	F0061
Connecticut	CT	D0009	D0009	Japan	F0062	F0062
Delaware	DE	D0010	D0010	Canada	F0063	F0063
Dist. of Columbia		D0011	D0011	England	F0064	F0064
Florida	FL	D0012	D0012	Spain	F0065	F0065
Georgia	GA	D0012	D0013	Denmark	F0067	F0067
Hawaii	HI	D0015	D0015	Germany	F0068	F0068
Idaho	ID	D0015	D0015	Belgium	F0069	F0069
Illinois	IL	D0010	D0017	Finland	F0070	F0070
Indiana	IN	D0017		Netherlands	F0071	F0071
	IA		D0018	Pacific Islands	F0072	F0072
lowa		D0019	D0019	Venezuela	F0073	F0073
Kansas	KS	D0020	D0020	Marshall Islands	F0074	F0074
Kentucky	KY	D0021	D0021	France	F0076	F0076
Louisiana	LA	D0022	D0022	Malaysia	F0077	F0077
Maine	ME	D0023	D0023	Austria	F0078	F0078
Maryland	MD	D0024	D0024	Holland	F0079	F0079
Massachusetts	MA	D0025	D0025	Hong Kong	F0080	F0080
Michigan	MI	D0026	D0026	Norway	F0081	F0081
Minnesota	MN	D0027	D0027	Panama	F0082	F0082
Mississippi	MS	D0028	D0028	Greece	F0084	F0084
Missouri	MO	D0029	D0029	Peru	F0085	F0085
Montana	MT	D0030	D0030	Brazil	F0086	F0086
Nebraska	NE	D0031	D0031	Offshore beyond 12 mi.	F0087	F0087
Nevada	NV	D0032	D0032	Saudi Arabia	F0088	F0088
New Hampshire	NH	D0033	D0033	Jamaica	F0089	F0089
New Jersey	NJ	D0034	D0034	Italy	F0090	F0090
New Mexico	NM	D0035	D0035	Belize	F0091	F0091
New York	NY	D0036	D0036	Luxemburg	F0092	F0092
North Carolina	NC	D0037	D0037	Haiti	F0093	F0093
North Dakota	ND	D0038	D0038	Nicaragua	F0094	F0094
Ohio	OH	D0039	D0039	Australia	F0095	F0095
Oklahoma	OK	D0040	D0040	Sweden	F0096	F0096
Oregon	OR	D0041	D0041	El Salvador	F0097	F0097
Pennsylvania	PA	D0042	D0042	Trinidad de Tobago	F0098	F0098
Rhode Island	RI	D0042	D0042	Taiwan	F0099	F0099
South Carolina	SC	D0044	D0044 D0045	Cambodia	F0001	F0001
South Dakota	SD	D0043	D0045	Bahamas Islands	F0002	F0002
Tennessee	TN	D0048		Columbia	F0003	F0003
			D0047	South Africa	F0004	F0004
Utah Varrant	UT	D0049	D0049	China	F0005	F0005
Vermont	VT	D0050	D0050	India	F0006	F0006
Virginia	VA	D0051	D0051	Chile	F0007	F0007
Washington	WA	D0053	D0053	Thailand	F0008	F0008
West Virginia	WV	D0054	D0054	Slovenia	F0009	F0009
Wisconsin	WI	D0055	D0055	Netherlands Antilles (A,B,C)	F0010	F0010
Wyoming	WY	D0056	D0056	Honduras	F0011	F0011



- John Hall, Chairman
Pam Reed, Commissioner
Peggy Garner, Commissioner

Anthony C. Grigsby, Executive Director

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Published and distributed by the Texas Natural Resource Conservation Commission Post Office Box 13087 Austin, Texas 78711-3087

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### Section 1. Introduction

The purpose of this guideline is to support and assist generators of industrial waste and generators of hazardous waste in meeting the requirements of the 30 TAC Chapter 335 Subchapter R rules. These rules pertain to the classification and coding of industrial wastes and hazardous wastes generated within the state of Texas as well as for wastes generated outside of the state and sent to Texas for treatment, storage, and/or disposal. They DO NOT apply to non-hazardous waste generated by non-industrial facilities.

Industrial wastes are wastes resulting from or incidental to any process of industry, process of manufacturing, mining operations or agricultural operations. Examples of industrial wastes are wastes from power generation facilities, manufacturing facilities, laboratories serving an industry, and parts manufacturers. Examples of non-industrial facilities include schools, hospitals, churches, dry-cleaners, most service stations, and laboratories serving the general public.

Throughout this guideline, generators of industrial wastes and hazardous wastes will be referred to as "generator" or "generators". Also, 30 TAC Chapter 335 Subchapter R will be referred to as "these rules" or "the rules".

Please note that a Class 2 or Class 3 waste classification designation does not mean that the waste is incapable of causing harm in every management (or mismanagement) situation. Waste classification is **not a tool for site risk assessments** since it does not fully characterize a waste, the waste's environment, and the waste's potential receptors under a given scenario. Waste classification is a tool which categorizes the general potential of a waste to cause harm. The more potential to cause harm, the more stringent the classification.

Regardless of the classification of a waste, the generator remains responsible for the management of that waste such that it does not cause harm to human health and/or the environment.

### **APPENDIX J**

### **Industrial vs. Nonindustrial Generators**

### Description of an Industrial Generator:

- 1. A company that makes a product for wholesale (and the product is made according to an organized plan and with a division of labor), or
- 2. A company that changes materials by processing them, or
- 3. A company that substantially supports either of the two companies described above.

	amples of L GENERATORS
Ceramic floor and wall tile manufacturers	Product testing facilities
Apparel and accessory manufacturers	Fabricated metal products facilities
Intermediate chemical storage facilities	Slaughterhouses
Electroplating operations	Electronic assembly facilities
Mobil home construction	Wineries

Examples of NONINDUSTRIAL GENERATORS		
Retail stores and outlets	Furniture refinishing services	
One-hour eyeglass facilities	Public transportation providers	
Commercial printers (e.g., business cards, forms)	Custom cabinetmakers	
Publishers/Printers/Newspapers	Automobile dealers	
Lawn and gardening services	Dry cleaning facilities	
Telecommunications	Gasoline stations	
Meat packaging only (no slaughtering)	Artisans (e.g., custom furniture, custom artwork)	

### Section 2. Identification of a Waste Stream

In order to classify and code a "waste stream", one must first know how a "waste stream" is identified.

For the purpose of this guideline and the rules' notification requirements, a "waste stream" is identified as a waste which is different from other wastes either in the way it was generated or in its physical and/or chemical properties. Therefore, if a waste is altered it may be identified as more than one "waste stream". For example, if a hazardous acidic waste is neutralized it would be identified by one Texas Waste Code for the hazardous acidic waste and a different Texas Waste Code for the neutralized waste.

In addition, one waste stream CAN NOT have more than one CLASSIFICATION.

The following are examples of what is and is not considered a waste stream.

- Different TYPES of waste from the same TYPE of process are different waste streams. For example, a sludge removed from an electroplating vat is not the same waste stream a liquid removed from an electroplating vat.
- Similar TYPES of wastes from different TYPES of processes are different waste streams. For example, methylene chloride utilized in a paint stripping operation is not the same waste stream as methylene chloride utilized in laboratory analysis.
- Similar TYPES of wastes from similar Types of processes may be considered one waste stream even if the wastes are generated in different parts of the generating site. For example, a site may have several paint booths which perform the same activities with the same materials and each produces drop cloth waste. These drop cloth wastes, from the various locations at this site, could be considered one waste stream as long as they were all classified the same.
- If a waste stream is treated (including processing, neutralization, dewatering, stabilization....) such that the physical and/or chemical characteristics of the waste have been altered, then a new waste stream has been generated. For example, if a sludge is dewatered, it may produce two new waste streams one a solid and the other a liquid.

Any time the composition of a particular waste stream changes, it is potentially a new waste stream. (The waste stream is always a new waste stream if the composition change results in a change in waste classification.) In certain waste generation processes, the composition of waste streams may vary due to a variety of reasons. The Commission acknowledges this fact and notes that *slight* changes in composition, unless these changes impact the waste's classification or form code, do not require notification of an additional waste stream. For example, a generator whose paint waste sludge varies in its toluene and acetone concentration may not need to provide more than one notification on the sludge, unless its classification changes or the information submitted in the original notification changes. In many instances, this variation in composition can be addressed in the original notification submittal or subsequent notifications on the same waste stream by noting the potential concentration ranges. Ranges beyond this could be viewed as significant. The Commission also notes that *significant* compositional changes in a waste stream might not impact the waste's classification or form code; however, due to the significant change in composition, notification of a new waste stream may be warranted.

For specific guidance on specific waste streams, it is suggested that the generator contact the Commission.

### Section 3. Waste Classification Checklist

This checklist is to be used as a guideline in classifying non-industrial hazardous waste and all industrial waste. Generators should refer to 30 TAC Chapter 335 Subchapter R §§335.501-.508 for a more detailed explanation of waste classifications.

In determining a waste stream's classification, a generator may utilize process knowledge and/or analytical testing. Information and documentation requirements for these two evaluation methods may be found in Section 5 (DOCUMENTATION REQUIREMENTS) of this guideline.

For convenience purposes, the non-hazardous classification criteria that could involve analytical testing has been marked with a  $\star$ . This **does not** mean that analytical testing is the only way to evaluate this criteria. If sufficient process knowledge is available, little or no analytical analysis may need to be performed. The generator will need to evaluate what is known about the waste and then determine if it is sufficient to address the classification criteria or if testing is required.

Please note that generators are required to fully document the information utilized in making their waste classifications. A completed checklist does not qualify as full documentation. Documentation should be in a written and/or electronically stored format which is reasonably accessible and easily reproducible. Documentation should include all rationale, process knowledge, sample collection methods, testing procedures, analytical data and quality control utilized in the classification determination.

### Part I. HAZARDOUS WASTE DETERMINATION - to be performed by all generators of waste

A hazardous waste determination is based upon the RCRA definition of a hazardous waste as found in 40 CFR Part 261. This guideline reflects the hazardous waste definition as of January 1, 1993. Should that definition change, the generator is still responsible for making a proper hazardous waste determination in accordance with the latest regulations – **NOT** with what is printed in this guideline.

(Please note that 40 CFR §261.3 and §261.4 exclude certain types of wastes, under certain conditions, from being considered hazardous wastes. Generators may wish to review these exclusions when determining whether or not their wastes are hazardous.)

If the answer to any of the following questions in this Part is "yes", then the waste is hazardous. If it is hazardous it can not be classified as a non-hazardous waste.

Is the waste a listed hazardous waste, mixed with a listed hazardous waste, or derived from a listed hazardous waste?

Descriptions of listed waste are found in 40 CFR §261.31 through §261.33 (40 CFR Part 261 Subpart D). These are often referred to as the

- "F" listed waste (waste from non-specific sources §261.31),
- "K" listed waste (wastes from specific sources §261.32),
- "P" listed waste (unused acute hazardous off-specification materials as well as container residues and spill residues of these materials §261.33), and
- "U" listed waste (unused toxic hazardous off-specification materials as well as container residues and spill residues of these materials §261.33).

Is the waste ignitable per 40 CFR §261.21?

Liquid wastes (other than those aqueous waste containing less than 24% alcohol by volume) which have a flash point less than 60 degrees C (140 degrees F) are ignitable wastes. (Test method: Pensky-Martens Closed Cup Tester, using the test method specified in ASTM Standard D-93-79 or D-93-80, or a Setaflash-Closed Cup Tester, using the test method specified in ASTM Standard D-3278-78)

Non-liquid wastes which are capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burn so vigorously and persistently that they create a hazard are considered ignitable wastes.

Wastes which meet the definition of an ignitable compressed gas (see 49 CFR §173.300) are ignitable wastes.

Wastes which meet the definition of oxidizer (see 49 CFR §173.151) are ignitable wastes.

Is the waste corrosive per 40 CFR §261.22?

Aqueous wastes which have a pH less than or equal to 2 or greater than or equal to 12.5 are considered corrosive wastes.

Liquid wastes which corrode steel at a rate greater than 6.35 mm (0.250 inches) per year are considered corrosive wastes.

Is the waste reactive per 40 CFR §261.23?

A waste is reactive if it is capable of detonation or explosive decomposition or reaction:

- 1. at standard temperature and pressure, or
- 2. if subjected to a strong ignition source, or
- 3. heated under confinement.

A waste is reactive if, when mixed with water it is:

- 1. potentially explosive, or
- 2. reacts violently, or
- 3. generates toxic gases or vapors.

A cyanide or sulfide bearing waste is reactive if, when exposed to pH conditions between 2 and 12.5, it can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment. (Generally, if a waste generates 250 ppm or more reactive cyanides or 500 ppm or more reactive sulfides, it is considered a reactive waste).

A waste is reactive if it is:

1. normally unstable and readily undergoes violent change without detonating, or

- 2. a forbidden explosive (see 49 CFR §173.53), or
- 3. a Class B explosive (see 49 CFR §173.88).

\_\_\_\_\_ Is the waste toxic per 40 CFR §261.24?

A waste is toxic for any constituent which leaches at or greater than the regulatory level set by EPA when the waste is subjected to the Toxicity Characteristic Leachate Procedure (TCLP) as described in EPA Method 1311 (40 CFR Part 261 Appendix II).

### **TCLP Regulatory Levels**

arsenic - 5.0 mg/l hexachlorobenzene - 0.13 mg/l barium - 100.0 mg/l hexachlorobutadiene - 0.5 mg/l benzene - 0.5 mg/l hexachloroethane - 3.0 mg/l cadmium - 1.0 mg/l lead - 5.0 mg/l carbon tetrachloride - 0.5 mg/l lindane - 0.4 mg/l chlordane - 0.03 mg/l mercury - 0.2 mg/l chlorobenzene - 100.0 mg/l methoxychlor - 10.0 mg/l chloroform - 6.0 mg/l methyl ethyl ketone - 200.0 mg/l chromium - 5.0 mg/l nitrobenzene - 2.0 mg/l o-cresol - 200.0 mg/l pentachlorophenol - 100.0 mg/l m-cresol - 200.0 mg/l pyridine - 5.0 mg/l p-cresol - 200.0 mg/l selenium - 1.0 mg/l cresol - 200.0 mg/l silver - 5.0 mg/l 2.4-D - 10.0 mg/l tetrachloroethylene - 0.7 mg/l 1,4-dichlorobenzene - 7.5 mg/l toxaphene - 0.5 mg/l 1,2-dichloroethane - 0.5 mg/l trichloroethylene - 0.5 mg/l 1,1-dichloroethylene - 0.7 mg/l 2,4,5-trichlorophenol - 400.0 mg/l 2,4-dinitrotoluene - 0.13 mg/l 2,4,6-trichlorophenol - 2.0 mg/l endrin - 0.02 mg/l 2,4,5-TP (Silvex) - 1.0 mg/lheptachlor (and its epoxide) - 0.008 mg/l vinyl chloride - 0.2 mg/l

If the answer to any of the preceding questions in this Part is "yes", then the waste is hazardous. If it is hazardous it can not be classified as a non-hazardous waste. If the answers are "no" to all of the preceding questions and the waste is an industrial waste, then proceed to Part II. If the answers are "no" to all the preceding questions and the waste is a non-industrial waste, stop here.

Part II. CLASS 1 & Class 2 WASTE DETERMINATION — applicable to nonhazardous, industrial waste only - (The corresponding regulations for the following criteria can be found in 30 TAC §335.505 and §335.508.)

If the answer to any of the following non-numbered questions in this Part is yes, then the non-hazardous, industrial waste is a Class 1 waste. If all the answers to the following non-numbered questions in this Part are no, then the industrial waste can be considered a Class 2 waste.

 Has the generator chosen to classify his non-hazardous waste as a Class 1 waste?
Is the waste a container, less than 5 gallons in holding capacity, which has held a hazardou waste or a product?

	Are any of the answers to questions (1) or (2) below "NO"?
	If the waste is a container, greater than or equal to 5 gallons in holding capacity, which has held a Hazardous Substance (as defined in 40 CFR Part 302), a hazardous waste, a Class 1 waste, and/or a material which would be classified as a hazardous or Class 1 waste if disposed, answer questions (1) and (2). If not, proceed to the next non-numbered question.
	(1) Has the container had all its residues removed? ☐ Yes ☐ No
	(2) Has the container been rendered unusable? ☐ Yes ☐ No
·	(For a list of hazardous substances, please see Appendix A (Hazardous Substances) of this guideline.)
	Does the waste contain asbestos material identified as Regulated Asbestos Containing Material (RACM) as defined in 40 CFR Part 61? ★
	(See "Regulated Asbestos Containing Material" under Section 10 (DEFINITIONS AND TERMS) for additional information on RACM.)
	Is the waste contaminated by a material which originally contained greater than or equal to 50 parts per million total polychlorinated biphenyls (PCBs)? *
	Does the waste contain greater than or equal to 50 ppm PCBs? ★
	Does the waste contain greater than 1500 ppm total petroleum hydrocarbons (TPH)? ★
	(See "Petroleum Hydrocarbon Containing Wastes" under Section 10 (DEFINITIONS AND TERMS) for additional details on wastes resulting from the clean-up of leaking underground storage tanks.)
·	Is the waste from the production of a "new chemical substance" (as defined by the federal Toxic Substances Control Act, 15 U.S.C.A §2602(9))?
•	(See "New Chemical Substances Wastes" under Section 10 (DEFINITIONS AND TERMS) for details on how this particular type of waste may be classified as a Class 2 or Class 3 waste.)
	Is the waste generated outside the state of Texas?
	(See "Wastes Generated Out-Of-State" under Section 10 (DEFINITIONS AND TERMS) for details on how this particular type of waste may be classified as a Class 2 or Class 3 waste.)
	If the waste is a liquid, does it have a flash point of less than 65.6 degrees C (150 degrees F)?★
	Is the waste a solid or semi-solid which, under conditions normally incident to storage, transportation, and disposal, is liable to cause fires through friction, retained heat from manufacturing or processing, or which can be ignited readily, and when ignited burns so vigorously and persistently as to create a sorious bezond?

	Is the waste a semi-solid or solid which, when mixed with an equivalent weight of ASTM Type II laboratory distilled or deionized water, produces a solution having a pH less than or equal to 2 or greater than or equal to 12.5? (Note: An exception for solidified, stabilized, encapsulated, or otherwise chemically-bound wastes is provided for in 30 TAC §335.505(3)) *
	Does the waste leach Class 1 toxic constituents at or above the levels listed in Table 1, Appendix 1 of 30 TAC Chapter 335 Subchapter R when submitted to the Toxicity Characteristic Leaching Procedure (TCLP)? *
	(See Appendix B of this guideline for a copy of Table 1, Appendix 1.)
	(Where matrix interferences of the waste cause the Practical Quantitation Limit (PQL) of the specific analysis to be greater than the Maximum Concentration listed in Table 1, Appendix 1, then the achievable PQL becomes the Maximum Concentration, provided that the generator maintains documentation which would satisfactorily demonstrate to the Commission that lower levels of quantitation of a sample are not possible. A satisfactory demonstration includes the results from the analysis of the waste for that specific analyte by a laboratory utilizing an appropriate method found in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods (EPA SW-846), "Methods for Chemical Analysis of Water and Wastes" (EPA-600 series), "Standard Methods for the Examination of Water and Wastewater", "American Society for Testing and Materials (ASTM) Standard Methods", or an equivalent method approved by the Commission.)
	Is information lacking which demonstrates that the waste is a Class 2 or Class 3 waste?
	If the answer to any of the preceding non-numbered questions in this Part is yes, then the non-hazardous, industrial waste is a Class 1 waste. If all the answers to the preceding non-numbered questions in this Part are no, then the industrial waste can be considered a Class 2 waste.
	If the answers are "no" to all of the preceding non-numbered questions of this Part and the industrial generator wishes to evaluate the waste for a possible Class 3 classification, then proceed to Part III. If not, stop here.
Part III.	CLASS 3 WASTE DETERMINATION – applicable to nonhazardous, industrial waste which does not meet the definition of a Class 1 waste and is not specifically identified as a Class 2 waste - (The corresponding regulations for the following criteria can be found in 30 TAC §335.507 and §335.508.)
	If the answer to any of the following questions in Part III A. is "YES", then the non-hazardous, industrial waste can <b>not</b> be considered a Class 3 waste.
	A.
	Is the waste an empty container?
÷	Is the waste a medical waste regulated under the 30 TAC Chapter 330 Subchapter Y?
<i>t</i> 1	(See "Medical Wastes" under Section 10 (DEFINITIONS AND TERMS) for additional details concerning this type of waste.)

	When submitted to the 7-Day Distilled Water Leachate Test, does the waste leach constituents at or above the Maximum Contaminant Levels listed in Table 3, Appendix 1 of 30 TAC Chapter 335 Subchapter R? ★
	(See Appendix C of this guideline for a copy of Table 3, Appendix 1.)
	When submitted to the Toxicity Characteristic Leaching Procedure (TCLP), does the waste leach Class 1 toxic constituents listed in Table 1, Appendix 1 of Subchapter R at or above their detection levels? ★
·	NOTE: Excluded from this list of Class 1 toxic constituents are those constituents which are addressed in the previous question (ie. constituents identified in Table 3, Appendix 1 of 30 TAC Chapter 335 Subchapter R).
	(See Appendix D of this guideline for information pertaining to detection limits for Table 1, Appendix 1 constituents.)
	Does the waste contain petroleum hydrocarbons (Method: 418.1) ★
	Does the waste contain polychlorinated biphenyls (PCBs)? ★
	Is the waste readily decomposable?
waste car	wer to any of the preceding questions of Part III A. is "YES", then the non-hazardous, industrial not be considered a Class 3 waste. If all the answers to the preceding questions of Part III A. ', then proceed to Part III B. to continue the evaluation for a possible Class 3 classification.
В.	
	Is the waste inert? (Inertness refers to chemical inactivity of an element, compound, or a waste.)
	Is the waste essentially insoluble"?
be consic answers	wer to any question under Part III B. is "NO", then the non-hazardous, industrial waste can <b>not</b> lered a Class 3 waste. If all the answers to the questions in Part III A. are "NO", and all the to the questions in Part III B. are "YES", then the non-hazardous industrial waste can be ed a Class 3 waste.
The Com	mission may determine, on a case-by-case basis, the merits of a variance request for a specific

requestor must submit information sufficient to clearly indicate the issues involved, the reason(s) for the request, and both the positive and negative impacts that may result from the granting of the variance. (The regulations corresponding to this these types of variance requests can be found in 30 TAC §335.514 (Variance from Waste Classification Provisions).)

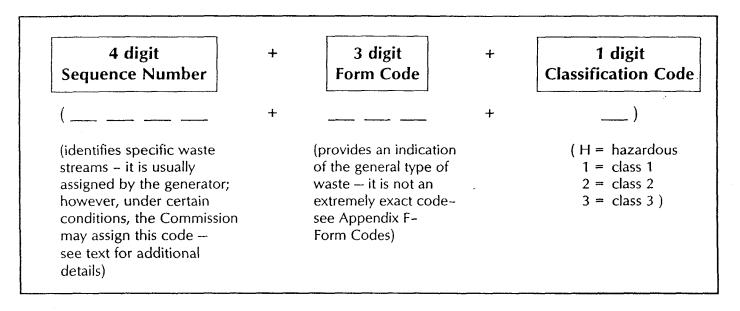
non-hazardous classification. The burden of justifying the need for a variance is on the requestor. The

<sup>★</sup> As a reminder, these characteristics need not necessarily be addressed by analytical analysis. A generator may be able to address them through process knowledge. For more information on process knowledge, please see Section 5 (DOCUMENTATION REQUIREMENTS) of this guideline.

<sup>\*\*</sup> Please note that wastes which contain liquids are NOT considered insoluble.

### Section 4. Texas Waste Code Formula

The formula for generating the Texas waste code is given below. The regulations corresponding to this formula can be found in 30 TAC §335.503 (Waste Classification and Waste Coding Required).



### Part I. Sequence Number

The following summarizes the various types of 4-digit sequence numbers utilized in the Texas waste code.

- an arbitrary and unique 4-digit number from 0001 to 9999 (no alpha characters) which is assigned by the generator when adding a waste stream to a facility's Notice of Registration Once assigned to a particular waste stream, a sequence number can not be reassigned to another waste stream.
   Generators need not sequentially assign sequence numbers to a facility's waste streams. Prior to January 1, 1993, the Commission associated 3 digit waste sequence numbers with waste streams on a facility's Notice of Registration. These 3 digit waste sequence numbers have no relationship to the new 4 digit sequence numbers. Therefore, when assigning a 4 digit sequence number, generators need not convert the 3 digit waste sequence number to the 4 digit sequence number, unless they choose to do so. (Please note that a generator can add contaminated soil and other spill related waste to a site's Notice of Registration rather than going through the one-time-shipment program which is discussed later.)
- a **4-digit alpha-numeric number** assigned by the Commission to wastes generated by **unregistered generators** within Texas
- a 4-digit alpha-numeric number assigned by the Commission to wastes under the one-time shipment program (Spill waste not managed under the Emergency Response Program may be handled in this manner.)
- a 4-digit alpha-numeric number assigned by the Emergency Response Section for spill waste regulated under the Emergency Response Program
- "OUTS" to be utilized for wastes generated outside of Texas

- "CESQ" to be utilized by Municipal Conditionally Exempt Small Quantity Generators
- "TSDF" to be utilized by facilities which (1) receive and consolidate a waste stream with other like waste streams (thus not changing the form or composition of the waste) or (2) store a received waste without treating or changing the form or composition of that waste This sequence number does not pertain to wastes which are treated or in some other way altered. The "TSDF" designation is to be used only by facilities that store and/or accumulate a quantity of waste from more than one site for subsequent shipment to a treatment or disposal facility.

### Part II. Form Codes

The second series of numbers found in the Texas waste code represents the "form code". The list of form codes as well as flow charts depicting the choosing of a form code can be found in Appendix F (Form Codes) of this guideline.

Form codes are broken down into ten major categories. They are LAB PACKS, INORGANIC LIQUIDS, ORGANIC LIQUIDS, INORGANIC SOLIDS, ORGANIC SOLIDS, INORGANIC SLUDGES, ORGANIC SLUDGES, INORGANIC GASES, ORGANIC GASES, and PLANT TRASH. The various form codes and corresponding descriptions can be found under these categories.

In determining a waste stream's form code, it is recommended that the generator first determine into which major category the waste stream fits. The generator should then review all the form code descriptors in that category to determine which code or codes best describe the generator's waste stream. The generator should then chose, from his narrowed down list, a form code for the waste stream.

As noted in the waste code formula, form codes are fairly generic in their descriptions. It is possible that more than one form code may be applicable to a particular waste stream. Generators should assign the form code which best describes the waste stream. If more than one form code can "best describe" the waste stream, then the generator should choose one of those several codes.

#### Part III. Classification Code

An indication of the waste stream's classification completes the Texas waste code. As the formula indicates, this code will be "H" or "1" or "2" or "3".

### Section 5. Documentation Requirements

### Part I. General

The following documentation is to be maintained on-site for all industrial waste and for all hazardous waste. This documentation must be maintained for at least 5 years after the waste is no longer generated or stored or until site closure. (The regulations corresponding to documentation requirements can be found in 30 TAC §335.9 (Recordkeeping and Annual Reporting Procedures Applicable to Generators), §335.70 (Recordkeeping), §335.510 (Sampling Documentation), §335.511 (Use of Process Knowledge), and §335.513 (Documentation Required).)

- description of the waste
- date of initial waste generation
- a detailed description of the process generating the waste
- a proper hazardous waste determination
- all information and rationale (including analytical data and/or process knowledge) used to characterize the waste
- waste classification determination

### Part II. Analytical Data

When analytical data is utilized for classification purposes, the following documentation is also to be maintained.

- Sampling Procedures
  - dates of sample collection
  - description of the site and/or unit from which the sample was taken, including sampling locations
  - the method of sampling and equipment used for sampling
  - a description of the sampling technique, including collection, containerization, and preservation
  - rationale for the sampling plan
- Analytical Data
  - analytical results including quality control data
  - identification of analytical methods (including any preparatory methods)
  - identification of detection limits

- identification of the laboratory performing the analytical analysis
- documentation which satisfactorily demonstrates that lower levels of quantitation are not possible (This is only necessary when a nonhazardous waste is being evaluated against the Class 1 criteria and matrix interferences of the waste causes the Practical Quantitation Limit (PQL) of a Class 1 toxic constituent (Appendix 1, Table 1 Appendix B of this guideline) to be greater than the Maximum Concentration listed.)
- Chain of Custody

### Part III. Process Knowledge

If process knowledge is utilized in a waste classification determination, that process knowledge must also be documented and maintained. (Please note that process knowledge must be maintained in some type of written or electronic storage format. It **can not** be stored solely in someone's mind.) In many cases, process knowledge can be utilized to limit the amount of analytical testing required for waste classification determinations.

The following are examples of process knowledge which may assist generators in waste classification determinations.

- Material Safety Data Sheets (MSDSs) (Please note that not all MSDSs contain information on all
  constituents found in a product. MSDSs were not created for the purpose of Texas waste
  classification determinations. However, they may be a helpful tool.)
- manufacturer's literature
- identification of chemicals/materials involved in the waste generation process (including any potential break down products)
- full descriptions of waste generation activities
- identification of potential contaminants
- other documentation generated in conjunction with a particular process
- preliminary testing results

- all supporting rationale and documentation utilized in that waste's classification
- notice to the Commission that the waste is from the production of a "new chemical substance"

Please note that nonhazardous waste from the production of a "new chemical substance" is to be managed as a Class 1 waste, unless the generator can provide appropriate analytical data and/or process knowledge which demonstrates that the waste meets the definition of a Class 2 or Class 3\*, and the Commission concurs. If the generator has not received concurrence or concurrence denial from the Commission within 120 days from the date of the request for review, the generator may manage the waste according to the requested classification, but not prior to giving 10 working days written notice to the Commission of its intent to manage the waste as a Class 2 or a Class 3.

### Part V. Alternate Analytical Methods:

Generators who propose an alternate analytical method must validate their alternate method by demonstrating that the method is equal to or superior in accuracy, precision, and sensitivity to the corresponding SW-846, EPA-600, "Standard Methods for the Examination of Waster and Wastewater" or ASTM method. In making this demonstration, the generator must provide the Commission, at a minimum, the following documentation.

- a full description of the proposed method (including all equipment and reagents to be used)
- a description of type of waste and waste matrices to be analyzed
- comparative results of the proposed method and corresponding SW-846, EPA-600, "Standard Methods for the Examination of Water and Wastewater" or ASTM method
- a complete assessment of interferences
- a description of quality control procedures
- additional information as needed and/or requested by the Commission to adequately review the proposed alternate method

<sup>\*</sup> The definitions for Class 2 and Class 3 wastes may be found in Section 10. (Definitions and Terms).

# **Section 7.** Texas Natural Resource Conservation Commission (TNRCC) Forms

Notification forms can be obtained by contacting a TNRCC region office near you or the Waste Evaluation Section of the Industrial and Hazardous Waste Division. The Waste Evaluation Section may be contacted at (512) 908-6632 or the following address:

735-6832

Waste Evaluation Section Industrial and Hazardous Waste Division Texas Natural Resource Conservation Commission Post Office Box 13087 Austin, Texas 78711-3087

If calling, please provide the receptionist with either the name of the form you are seeking or its order form number. This will help the Commission get the correct form to you as quickly as possible.

Notification forms available at the time of this guideline's printing include the following:

- The "Hazardous or Industrial Waste Initial Notification Form" which is used for initial notification of a site. (order form number: TNRCC-0002)
- The "Hazardous Or Industrial Waste Stream Notification Form" which is used when adding a waste stream to a Notice of Registration or when recoding a 6 digit waste code into one or more 8 digit waste codes. (order form number: TNRCC-0002A)
- The "Hazardous or Industrial Waste Management Units Form" which is to be used when adding waste management unit information to a Notice of Registration. (order form number: TNRCC-0002B)
- The "EPA Notification of Regulated Waste Activity" which is to be used when notifying of a federally regulated hazardous waste activity. (ie. the generation of hazardous waste) (order form number: EPA 8700-12)
- The "Request For Texas Waste Code And Authorization For Shipment Of Class 1, 2, 3 and EPA Hazardous Waste" form which is to be used for the one-time-shipment of waste that is not regularly generated and which is not identified on a site's Notice of Registration. (order form number: TNRCC-0757)



## **Section** 8. Conversion to the 8 Digit Waste Code System

(The regulations corresponding to the conversion requirements can be found in 30 TAC §335.502 (Conversion to New Waste Notification and Classification System).)

Conversion to the new waste classification and coding system is as follows:

### January 1, 1993

On and after this date all newly generated waste streams and all previously unclassified waste streams shall be subject to the classification and coding requirements of these rules.

### July 1, 1994

On or before this date each regulated generator is to provide updated notification information (including classification and waste code) on each waste stream coded prior to January 1, 1993, unless that waste stream is no longer generated. In determining a waste stream's classification it is not necessary for the generator to re-evaluate, re-sample and re-analyze his waste if his existing information meets the documentation requirements outlined in this guideline and in the rules. (For more information on documentation requirements, please see Section 5 (DOCUMENTATION REQUIREMENTS.)

Generators need not utilize the 8-digit code upon notification. For example, a generator can provide updated notification information on a waste in March of 1994 and not ship or report under the 8-digit code until January 1, 1995.

Non-industrial generators need only provide this update for the hazardous waste they generate.

### January 1, 1995

By this date all waste will be subject to the requirements of these rules. Until this date, wastes classified and coded prior to January 1, 1993 can be managed in accordance with the pre-1993 classification or they can be managed in accordance with their reclassification and coding. Waste codes and classifications issued to waste streams prior to January 1, 1993 under the one-time shipment program can only be utilized for the one shipment for which they were secured. After the shipment has occurred, the code cannot be utilized for additional shipments.

### Wastes Classified Prior to January 1, 1993:

A generator may reclassify a waste and begin utilizing the corresponding 8-digit waste code anytime after December 31, 1992. However, once a generator ships a waste using the 8-digit waste code, the generator must continue using the 8-digit waste code and may not ship that same waste under the old 6-digit waste code.

Also, if a generator begins a calendar year using the 6-digit waste code, then reclassifies a waste and begins shipping under the new 8-digit waste code, the generator must report the activities for both waste codes in any report required by the Commission for that calendar year. For example, if a generator shipped 60 pounds of a particular waste under the 6-digit code and 100 pounds of the same waste under the 8-digit code, he would report the shipment of the 60 pounds under the 6-digit code and the shipment of the 100 pounds under the 8-digit code.

The Commission may determine, on a case-by-case basis, the merits of a variance request from compliance with the conversion schedule. The burden of justifying the need for a variance is on the requestor. The requestor must submit information sufficient to clearly indicate the issues involved, the reason(s) for the request, and both the positive and negative impacts that may result from the granting of the variance.

## **Section 9.** Management Provisions for Mechanical Shredding Wastes

(The regulations corresponding to the management provisions for mechanical shredding waste can be found in 30 TAC §335.508 (Classification of Specific Industrial Solid Wastes).)

Wastes generated by the mechanical shredding of automobiles, appliances, or other items of scrap, used or obsolete metals shall be handled according to the provisions set forth in Texas Solid Waste Disposal Act, Health and Safety Code, §361.019 (Vernon Pamphlet 1992), until the Commission develops specific standards for the classification of this waste and assures adequate disposal capacity.

These provisions include a stipulation that such waste shall be accepted, without authorization from the Commission, in a municipal solid waste facility that has previously been authorized to accept and has accepted Class I nonhazardous industrial solid wastes or Class II industrial solid wastes if the waste contains no free liquids, is not a hazardous waste, and satisfies other criteria that may be established by Commission rule.

### Section 10. Definitions and Terms

Definitions and terms as used in this guideline:

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Characteristically Hazardous Waste (40 CFR Part 261) – Any waste that exhibits the characteristic of ignitability, corrosivity, reactivity and/or toxicity as defined by the EPA in 40 CFR Part 261 Subpart C. These are often referred to as the "D" wastes.

Class 1 Waste (30 TAC §335.1) – Any waste or mixture of waste which, because of its concentration or physical or chemical characteristics is toxic, corrosive, flammable, a strong sensitizer or irritant, a generator of sudden pressure by decomposition, heat or other means, and may pose a substantial present or potential danger to human health or the environment when improperly processed, stored, transported, or disposed of or otherwise managed.

Class 2 Waste (30 TAC §335.1) – Any individual waste or combination of waste which cannot be described as Class 1 or Class 3 waste.

Class 3 Waste (30 TAC §335.1) - Inert and essentially insoluble waste, usually including but not limited to, materials such as rock, brick, glass, dirt, and certain plastics and rubber, etc. that are not readily decomposable.

Classification Code (30 TAC §335.503) – This code represents the classification of the waste stream. It is the last digit of the waste code. "H" represents hazardous wastes, "1" represents class 1 wastes, "2" represents class 2 wastes, and "3" represents class 3 wastes.

Form Code (30 TAC §335.503) – This code is associated with the description of a general type of waste stream. It consists of three (3) numeric characters. It appears in the 5th, 6th, and 7th position of the waste code. More than one form code may apply to a particular waste stream.

Hazardous Substance (30 TAC §335.508) – Any substance designated as a "hazardous substance" in 40 CFR PART 302 (ie. 40 CFR Table 302.4) including, but not limited to, RCRA hazardous waste.

Hazardous Waste Determination (30 TAC §335.504) – An evaluation of a waste to determine if it meets the RCRA definition of a hazardous waste.

Inert (30 TAC §335.507) – Inertness refers to the chemical inactivity of an element, compound, or waste. Ingredients added to mixtures chiefly for bulk and/or weight purposes are normally considered inert.

Listed Hazardous Waste (40 CFR Part 261 Subpart D) – Specific types of wastes which have been identified by the EPA as hazardous. These are often referred to as the "F" wastes (waste from non-specific sources), "K" wastes (wastes from specific sources), "P" wastes (acute hazardous off-specification species, container residues and spill residues thereof), and "U" waste (toxic hazardous off-specification species, container residues and spill residues thereof). A waste is considered a listed hazardous waste if it is listed or mixed with or derived from a waste listed as hazardous waste in 40 CFR Part 261 Subpart D and has not been provided a particular exclusion from the definition of hazardous as provided in 40 CFR §261.3 and §261.4.

**Medical Wastes (30 TAC §335.508)** – Nonhazardous medical wastes which are subject to the provisions of 30 TAC Chapter 330 Subchapter Y are designated as Class 2 wastes. An example of such waste would be needle bearing syringes from plant infirmaries.

New Chemical Substances Wastes (30 TAC §335.508) – If a nonhazardous industrial waste is generated as a result of the commercial production of a "new chemical substance" as defined by the federal Toxic Substances

Control Act, 15 U.S.C.A § 2602(9), the generator shall manage that waste as a Class 1 waste, unless the generator can provide appropriate analytical data and/or process knowledge which demonstrates that the waste is Class 2 or Class 3, and the Commission concurs. If the generator has not received concurrence from the Commission within 120 days from the date of the request for review, the generator may manage the waste according to the requested classification, but not prior to giving 10 working days written notice to the Commission.

Wastes Generated Out-Of-State (30 TAC §335.508) – All nonhazardous industrial waste generated outside the state of Texas and transported into or through Texas for processing, storage, or disposal shall be classified as Class 1 unless the waste satisfies the Class 2 or Class 3 criteria as defined in 30 TAC §335.506, §335.507 or §335.508; a request for Class 2 or Class 3 waste determination is submitted to the Commission and accompanied by all supporting process knowledge and analytical data; and the Commission approves the classification.

**Petroleum Hydrocarbon Containing Wastes (30 TAC §335.508)** – Wastes resulting from the cleanup of leaking underground storage tanks (USTs) which are regulated under 30 TAC Chapter 334 Subchapter K (relating to Petroleum Substance Waste) are not subject to classification under 30 TAC Chapter 335 Subchapter R.

**RCRA** - Resource Conservation and Recovery Act

Regulated Asbestos Containing Material (RACM) (30 TAC §335.508) - RACM includes the following materials.

- Friable asbestos material (Friable asbestos material is defined as any material containing more than 1 percent asbestos (\*) that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.)
- Category I nonfriable asbestos containing material that has become friable (Category I nonfriable asbestos containing material is defined as asbestos containing packings, gaskets, resilient floor coverings, and asphalt roofing products containing more than 1 percent asbestos.) \*
- Category I nonfriable asbestos containing material that has been subjected to sanding, grinding, cutting, or abrading (Category I nonfriable asbestos containing material is defined as asbestos containing packings, gaskets, resilient floor coverings, and asphalt roofing products containing more than 1 percent asbestos.) \*
- category II nonfriable asbestos containing material that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course or demolition or renovation operations (Category II nonfriable asbestos containing material is defined as any material, excluding Category I nonfriable asbestos containing material, containing more than 1 percent asbestos (\*) that, when dry, can not be crumbled, pulverized, or reduced to powder by hand pressure.)

**Regulated Generators (30 TAC Chapter 335 Subchapters A and C)** – Generators of any quantity of industrial waste and generators of non-industrial hazardous waste in quantities of greater than 100 kilogram of hazardous waste per month or 1 kilogram or more of acutely hazardous waste per month.

**Sequence Number (30 TAC §335.503)** – This unique number helps identify a particular waste stream. It appears as the first four (4) digits of the waste code.

Solid Waste (30 TAC §335.1 and 40 CFR §261.2) – Any discarded material such as garbage; refuse; sludge from a waste treatment plant, water supply treatment plant or air pollution control facility; or other material including

<sup>\*</sup> as determined using the method specified in Appendix A, Subpart F, 40 CFR Part 763, Section 1 Polarized Light Microscopy

solid, liquid, semisolid, or contained gaseous material resulting from industrial, municipal, commercial, mining, and agricultural operations. Solid wastes include any material that is abandoned by being disposed of, burned, or incinerated or accumulated, stored, or treated before or in lieu of these activities. Certain recycled materials are also considered wastes. Solid wastes are often referred to as "wastes". (For the complete definition of a "solid waste" please refer to 30 TAC §335.1 (Solid Waste).)

Specific Industrial Solid Waste (30 TAC §335.508) – Non-hazardous wastes for which specific classification criteria and/or a form code has been established.

Waste Code (30 TAC §335.503) – This code identifies a waste stream. It is eight (8) characters in length. The first four digits represent the sequence number, the next three digits represent the form code, and the last digit represents the waste's classification. (Sequence Number + Form Code + Classification Code = Waste Code)

WASTE STREAM (30 TAC §335.503) - see Section II (IDENTIFICATION OF A WASTE STREAM)

## **Appendices**

## Appendix A Hazardous Substances

Applicability: Empty Container Class 2 Evaluations

The following is a listing of materials identified as hazardous substances (40 CFR Table 302.4) at the time of this guideline's printing. (CAS numbers of the materials are also provided.)

MATERIAL	CAS NUMBER	MATERIAL	CAS NUMBER
10,10'-OXYDIPHENOXARSINE	58366	2,2'-THIOBIS	4418660
1,1,1,2-TETRACHLOROETHANE	630206	2,2'-(NITROSOIMINO)BISETHANOL	1116547
1,1,1-TRICHLOROETHANE	71556	2,2-DICHLOROPROPIONIC ACID	75990
1,1,2,2-TETRACHLOROETHANE	79345	2,3,4,6-TETRACHLOROPHENOL	58902
1,1,2-TRICHLOROETHANE	79005	2,3,5-TRICHLOROPHENOL	933788
1,1-DICHLOROPROPANE	78999	2,3,6-TRICHLOROPHENOL	933755
1,1-DIMETHYLHYDRAZINE	57147	2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN	1746016
1,2,4,5-TETRACHLOROBENZENE	95943	2,3-DICHLOROPROPENE	78886
1,2,4-TRICHLOROBENZENE	120821	2,4,5-T	93765
1,2,4-TRIMETHYL BENZENE	95636	2,4,5-T AMINES	6369977
1,2-BENZPHENANTHRENE	218019	2,4,5-T AMINES	6369966
1,2-BUTYLENE OXIDE	106887	2,4,5-T AMINES	3813147
1,2-DIBROMOETHANE	106934	2,4,5-T AMINES	1319728
1,2-DIBROMO-3-CHLOROPROPANE	96128	<sup>-</sup> 2,4,5-T AMINES	2008460
1,2-DICHLOROBENZENE	95501	2,4,5-T ESTERS	1928478
1,2-DICHLOROETHANE	107062	2,4,5-T ESTERS	93798
1,2-DICHLOROETHYLENE	540590	2,4,5-T ESTERS	2545597
1,2-DICHLOROETHYLENE	156605	2,4,5-TP ACID	93721
1,2-DICHLOROPROPANE	78875	2,4,5-TRICHLOROPHENOL	95954
1,2-DIHYDRO-3,6-PYRIDAZINEDIONE	123331	2,4,6-TRICHLOROPHENOL	88062
1,2-DIMETHYLHYDRAZINE	540738	2,4,6-TRIMETHYLANILINE	88051
1,2-DIPHENYLHYDRAZINE	122667	2,4-D ACID	94757
1,2-ETHANEDIYLBISCARBAMODITHIOIC ACID	111546	2,4-D ESTERS	1928387
1,2:3,4-DIEPOXYBUTANE	1464535	2,4-D ESTERS	94791
1,3,5-TRINITROBENZENE	99354	2,4-D ESTERS	94111
1,3-BENZENEDIOL	108463	2,4-D ESTERS	1320189
1,3-DICHLOROBENZENE	541731	2,4-D ESTERS	94804
1,3-DICHLOROPROPANE	142289	2,4-D ESTERS	2971382
1,3-DICHLOROPROPYLENE	542756	2,4-D ESTERS	1928616
1,4-DICHLOROBENZENE	106467	2,4-D ESTERS	1929733
1,4-DICHLORO-2-BUTENE	764410	2,4-DIAMINOANISOLE	615054
1,4-DIOXANE	123911	2,4-DICHLOROPHENOL	120832
1,4-NAPHTHALENEDIONE	130154	2,4-DIMETHYLPHENOL	105679
1-AMINO-4-METHOXY-ANTHRAQUINONE	82280	2,4-DINITROPHENOL	51285
1-BROMO-4-PHENOXY-BENZENE	101553	2,5-DINITROPHENOL	329715
1-METHYLBUTADIENE	504609	2,6-DICHLOROPHENOL	87650
1-PROPANAMINE	107108	2,6-DINITROPHENOL	573568
1-(CHLOROMETHYL)-4-NITRO-BENZENE	100141	2,6-DINITROTOLUENE	606202
1-(O-CHLOROPHENYL)THIOUREA	5344821	2,6-XYLIDINE	87627

### Appendix A-continued

MATERIAL	CAS NUMBER	MATERIAL	CAS NUMBER
2-ACETYLAMINOFLUORENE	53963	4-DIMETHYLAMINOAZOBENZENE	60117
2-AMINOANTHRAQUINONE	117793	4-METHYLBENZENAMINE	106490
2-BUTANONE PEROXIDE	1338234	4-METHYLTHIOPHENYL DIMETHYL	3254635
2-CHLOROACETOPHENONE	532274	4-NITROBIPHENYL	92933
2-CHLOROETHANESULFONYL CHLORIDE	1622328	4-NITROPHENOL	100027
2-CHLOROETHYL VINYL ETHER	110758	4-NITROPYRIDINE, 1-OXIDE	1124330
2-CHLOROPHENOL	95578	4-NITRO-BENZENAMINE	100016
2-CYCLOHEXYL-4,6-DINITROPHENOL	131895	5-NITRO-O-ANISIDINE	99592
2-ETHOXYETHANOL	110805	7,12-DIMETHYLBENZ[A]ANTHRACENE	57976
2-FURANCARBOXYLALDEHYDE	98011	ACENAPHTHENE	83329
2-METHOXYETHANOL	109864	ACENAPHTHYLENE	208968
2-METHYL-5-NITRO-BENZENAMINE	99558	ACETALDEHYDE	75070
2-METHYL-5-VINYL-PYRIDINE	140761	ACETAMIDE	60355
2-NITROPHENOL	88755	ACETIC ACID	64197
2-NITROPROPANE	79469	ACETIC ACID, ETHYL ESTER	141786
2-PHENYLPHENOL	90437	ACETIC ACID, LEAD (2+) SALT	
2-PICOLINE	109068	ACETIC ACID, LEAD (2+) SALT	301042 108247
3,3'-DICHLOROBENZIDINE	91941	ACETONE	
3,3'-DIMETHOXYBENZIDINE  3,3'-DIMETHOXYBENZIDINE	119904		67641
		ACETONE CYANOHYDRIN	75865
3,3'-DIMETHYLBENZIDINE	119937	ACETONE THIOSEMICARBAZIDE	1752303
3,3-BIS(CHLOROMETHYL) OXETANE	78717	ACETONITRILE	75058
3,4,5-TRICHLOROPHENOL	609198	ACETOYATRIDUEN ACETO ACETO ACETOYATRIDUEN ACETO	98862
3,4-BENZ[C]ACRIDINE	225514	ACETOXYTRIPHENYLSTANNANE	900958
3,4-DICHLOROPHENYL ISOCYANATE	102363	ACETYL BROMIDE	506967
3,4-DINITROTOLUENE	610399	ACETYL CHLORIDE	75365
3-CHLOROPROPIONITRILE	542767	ACROLEIN	107028
3-CHLOROPROPYL OCTYLSULFOXIDE	3569571	ACRYLAMIDE .	79061
3-METHYLCHOLANTHRENE	56495	ACRYLIC ACID	79107
3-(1-METHYLETHYL)-PHENOL,	64006	ACRYLONITRILE	107131
METHYLCARBAMATE		ACRYLYL CHLORIDE	814686
3-(TRIFLUOROMETHYL)-BENZENAMINE	98168	ADIPIC ACID	124049
4'-AMINOPROPIOPHENONE	70699	ADIPONITRILE	111693
4,4'-DIAMINODIPHENYL ETHER	101804	ALDICARB	116063
4,4'-ISOPROPYLIDENEDIPHENOL	80057	ALDRIN	309002
4,4'-METHYLENE BIS(N,N-DIMETHYL)	101611	ALLYL ALCOHOL	107 <b>1</b> 86
4,4'-METHYLENE DIANILINE	101779	ALLYL CHLORIDE	107051
4,4'-METHYLENEBIS(2-CHLOROANILINE)	101144	ALLYLAMINE	107119
4,4'-THIODIANILINE	139651	ALPHA - BHC	319846
4,5-DICHLOROBENZIMIDAZOLE	3615212	ALPHA,ALPHA-DIMETHYLPHENETHYLAMINE	122098
4,6-DINITRO-O-CRESOL	534521	ALPHA-ENDOSULFAN	959988
4-AMINOAZOBENZENE	60093	ALPHA-NAPHTHYLAMINE	134327
4-AMINOBIPHENYL	92671	ALPHA-NAPHTHYLTHIOUREA	86884
4-AMINOPYRIDINE	504245	ALUMINUM OXIDE (FIBROUS FORMS)	1344281
4-CHLOROBENZENAMINE	106478	AMINOPTERIN	54626
4-CHLORO-M-CRESOL	59507	AMITON	78535
4-CHLORO-O-TOLUIDINE, HYDROCHLORIDE	3165933	AMITON OXALATE	3734972

### Appendix A-continued

MATERIAL	CAS NUMBER	MATERIAL	CAS NUMBER
AMITROLE	61825	BENZO[GHI]PERYLENE	191242
AMMONIUM ACETATE	631618	BENZO[JK]FLOURENE	206440
AMMONIUM BENZOATE	1863634	BENZO[K]FLUORANTHENE	207089
AMMONIUM BICARBONATE	1066337	BENZYL CHLORIDE	100447
AMMONIUM BIFLOURIDE	1341497	BENZYL CYANIDE	140294
AMMONIUM CARBAMATE	1111780	BENZ[A]ANTHRACENE	56553
AMMONIUM CARBONATE	506876	BERYLLIUM COMPOUNDS	30333
AMMONIUM CITRATE, DIBASIC	3012655	BETA - BHC	319857
AMMONIUM HYDROXIDE	1336216	BETA-CHLORONAPHTHALENE	91587
AMMONIUM NITRATE (SOLUTION)	6484522	BETA-NAPHTHYLAMINE	91598
AMMONIUM OXALATE	5972736	BETA-PROPIOLACTONE	57578
AMMONIUM OXALATE	6009707	BIPHENYL	92524
AMMONIUM PICRATE	131748	BIS (2-CHLOROETHYL) ETHER	111444
AMMONIUM TARTRATE	3164292	BIS (CHLOROMETHYL) ETHER	542881
AMMONIUM THIOCYANATE	1762954	BIS (CHLOROMETHYL) KETONE	534076
AMPHETAMINE	300629	BIS(2-CHLOROETHOXY) METHANE	111911
AMYL ACETATE	628637	BIS(2-CHLORO-1-METHYLETHYL) ETHER	108601
ANILINE	62533	BIS(2-ETHYLHEXYL) ADIPATE	103231
ANTHRACENE	120127	BITOSCANATE	4044659
ANTIMONY AND COMPOUNDS	, 20, 2,	BORON TRIFLOURIDE / METHYL ETHER	353424
ANTIMONY TRIOXIDE	1309644	BROMOACETONE	598312
ANTIMYCIN A	1397940	BROMOFORM	75252
ARSENIC ACID	1327522	BROMOMETHANE	74839
ARSENIC AND COMPOUNDS		BRUCINE	357573
ARSENIC DISULFIDE	1303328	BUTADIENE	106990
ARSENIC OXIDE As2O3	1327533	BUTYL ACETATE	123864
ARSENIC OXIDE As2O5	1303282	BUTYL ACRYLATE	141322
ARSENIC TRISULFIDE	1303339	BUTYL BENZYL PHTHALATE	85687
ASBESTOS	1332214	BUTYLAMINE	109739
AZASERINE	115026	BUTYRALDEHYDE	123728
AZINPHOS-ETHYL	2642719	BUTYRIC ACID	107926
BARIUM COMPOUNDS	2012713	CACODYLIC ACID	75605
BARIUM CYANIDE	542621	CADMIUM ACETATE	543908
BENZAL CHLORIDE	98873	CADMIUM COMPOUNDS	3.5300
BENZAMIDE	55210	CADMIUM OXIDE	1306190
BENZENE	71432	CADMIUM STEARATE	2223930
BENZENEARSONIC ACID	98055	CALCIUM CARBIDE	75207
BENZENESULFONYL CHLORIDE	98099	CALCIUM CYANAMIDE	156627
BENZIDINE	92875	CALCIUM CYANIDE	592018
BENZOIC ACID	65850	CANTHARIDIN	56257
BENZONITRILE	100470	CAPTAN	133062
BENZOTRICHLORIDE	98077	CARBACHOL CHLORIDE	51832
BENZOYL'CHLORIDE	98884	CARBARYL	63252
BENZOYL PEROXIDE	94360	CARBOFURAN	1563662
BENZO[A]PYRENE	50328	CARBON DISULFIDE	75150
BENZO[B]FLUORANTHENE	205992	CARBON OXYFLOURIDE	353504
			- 3000 /

MATERIAL	CAS NUMBER	MATERIAL	CAS NUMBER
CARBON TETRACHLORIDE	56235	CUMENE	98828
CARBONYL SULFIDE	463581	CUMENE HYDROPEROXIDE	80159
CARBOPHENOTHION	786196	CUPFERRON	135206
CATECHOL	120809	CUPRIC ACETATE	142712
CHEMNAME CASNUM		CUPRIC NITRATE	3251238
CHLORAMBEN	133904	CUPRIC OXALATE	5893663
CHLORAMBUCIL	305033	CUPRIC TARTRATE	815827
CHLORDANE	57749	CYANIDE COMPOUNDS (CN-ONLY)	
CHLORFENVINFOS	470906	CYANIDE (SOLUABLE SALTS)	57125
CHLORINATED BENZENES		CYANOGEN	460195
CHLORINATED ETHANES		CYANOGEN BROMIDE	506683
CHLORINATED FLUOROCARBON	76131	CYANOGEN IODIDE	506785
(313 - FREON 113 ONLY)		CYANOPHOS	2636262
CHLORINATED NAPHTHALENE		CYANURIC FLOURIDE	675149
CHLORINATED PHENOLS		CYCLOHEXANE	110827
CHLORMEQUAT CHLORIDE	999815	CYCLOHEXANONE	108941
CHLORNAPHAZINE	494031	CYCLOHEXIMIDE	66819
CHLOROACETALDEHYDE	107200	CYCLOHEXYLAMINE	108918
CHLOROACETIC ACID	79118	CYCLOPHOSPHAMIDE	50180
CHLOROALKYL ETHERS	.,,,,	C.I. ACID GREEN 3	4680788
CHLOROBENZENE	108907	C.I. BASIC GREEN 4	569642
CHLOROBENZILATE	510156	C.I. BASIC RED 1	989388
CHLOROETHANE	75003	C.I. DIRECT BLACK 38	1937377
CHLOROETHANOL	107073	C.I. DISPERSE YELLOW 3	2832408
CHLOROETHYL CHLOROFORMATE	627112	C.I. FOOD RED 15	81889
CHLOROFORM	67663	C.I. FOOD RED 5	3761533
CHLOROMETHANE	74873	C.I. SOLVENT ORANGE 7	3118976
CHLOROMETHYL METHYL ETHER	107302	C.I. SOLVENT YELLOW 14	842079
CHLOROPHACINONE	3691358	C.I. SOLVENT YELLOW 3	97563
CHLOROPRENE '	126998	C.I. SOLVENT YELLOW 34	492808
CHLOROTHALINOL	1897456	C.I. VAT YELLOW 4	128665
CHLOROXURON	1982474	DDD	72548
CHLORPYRIFOS	2921882	DDE	72559
CHROMIC ACETATE	1066304	DDT	50293
COBALT COMPOUNDS	F0C001	DDT CONGENERS	30293
COBALTOUS FORMATE	544183	DECABROMODIPHENYL OXIDE	1163195
COKE OVEN EMISSIONS	544105	DELTA - BHC	319868
COLCHICINE	64868	DEMETON-S-METHYL	919868
COPPER COMPOUNDS	04000	DIALLATE	
COPPER CYANIDE	E 4 4 0 2 2		2303164
COUMAPHOS	544923	DIAZINON	334883
	56724	DIAZINON	333415
COUMATETRALYL  CREOSOLS (MINER ISOMERS)	5836293	DIBENZOFURAN	132649
CREOSOLS (MIXED ISOMERS) CRIMIDINE	1319773 535897	DIBENZ(A,H)ANTHRACENE DIBENZ(A,I)PYRENE	53703
CROTONALDEHYDE	4170303	DIBUTYL PHTHALATE	189559
		1 ·	84742
CROTONALDEHYDE, (E)-	123739	DICAMBA	1918009

DICHLONE 117806 ENDOSULFAN AND METABOLITES DICHLOROBROMOMETHANE 75274 ENDOSULFAN SULFATE 1031078 DICHLORODIFLUOROMETHANE (CFC-12) 75718 ENDOTHAL 145733 DICHLOROMETHANE 75092 ENDOTHION 2778043 DICHLOROMETHYLPHENYLSILANE 149746 ENDRIN AND METABOLITES DICHLORVOS 62737 ENDRIN AND METABOLITES DICOFOL 115322 EPICHLOROHYDRIN 106898 DICROTOPHOS 141662 EPINEPHRINE 51434 DIELDRIN 60571 EPN 2104645	MATERIAL	CAS NUMBER	MATERIAL	CAS NUMBER
DICHLOROBROMOMETHANE         75274         ENDOSULFAN SULFATE         1031078           DICHLOROMETHANE (CFC-12)         75718         ENDOTHAL         145733           DICHLOROMETHANE         75092         ENDOTHAL         145733           DICHLOROMETHANE         75092         ENDOTHON         2778043           DICCHLOROOS         62737         ENDRIN AND METABOLITES         1000000000000000000000000000000000000	DICHLOBENIL	1194656	ENDOSULFAN	115297
DICHLORODIFLUOROMETHANE (CFC-12)         75718         ENDOTHAL (145733)         145733         145733         2778043         1157322         2778043         2778044         2778044         2778044         2778044         2778044         2778044         2778044         2778044         2778044         2778044         2778044	DICHLONE	117806	ENDOSULFAN AND METABOLITES	
DICHLOROMETHANE         75992         ENDOTHION         2778043           DICHLOROMETHYLPHENYLSILANE         149746         ENDRIN         72208           DICHLOROVOS         62737         ENDRIN AND METABOLITES         1000000           DICCOTOPHOS         1115322         EPICHLOROCHYDRIN         106898           DIELDRIN         60571         EPN         2104645           DIETHYL CHLOROPHOSPHATE         814493         ETHION         563122           DIETHYL CHLOROPHOSPHATE         814493         ETHION         563122           DIETHYL CHLOROPHOSPHATE         84662         ETHYL CARBAMATE         51346           DIETHYL SULFATE         64675         ETHYL CARBAMATE         51796           DIETHYLLARASINE         109897         ETHYL CHLOROFORMATE         511413           DIETHYLLARASINE         1692422         ETHYL ETHER         60297           DIETHYLLTRASINE         156351         ETHYL ETHER         60297           DIETHYLLTRASINE         114552         ETHYL ETHER         60297           DIETHYLLTRASINE         1642542         ETHYL ETHER         60297           DIETHYLLTRASINE         115264         ETHYL ETHER         60297           DIETHYLLTRASINE         115264         ETHYL ETHER	DICHLOROBROMOMETHANE	75274		1031078
DICHLOROMETHYLPHENYLSILANE         149746         ENDRIN         7,2208           DICHLORVOS         62737         ENDRIN AND METABOLITES         106898           DICCOFOL         115322         EPICHLOROHYDRIN         106898           DICROTOPHOS         141662         EPINEPHRINE         51434           DIELDRIN         60571         EPIN         2104645           DIETHYL CHLOROPHOSPHATE         814493         ETHOLOROPHOSPHATE         501422           DIETHYL CHLOROPHOSPHATE         84662         ETHYL CARBAMATE         51322           DIETHYL SULFATE         64675         ETHYL CHLOROPGORMATE         51434           DIETHYLASINE         109897         ETHYL CHLOROFORMATE         51473           DIETHYLASINE         692422         ETHYL ETHER         60297           DIETHYLSTILBESTROL         56531         ETHYL METHANESULFONATE         54203           DIETHYLSTROPHENYL PHOSPHATE         311652         ETHYL METHANESULFONATE         542905           DIGITOXIN         71636         ETHYLBENCHENYL PHOSPHATE         53907           DIMETHYL PHOSPHOCHLORIDATE         254930         ETHYLBEN ELUROCHYDRIN         331620           DIMSOPROPUFLUOROPHOSPHATE         55914         ETHYLENE ELUROCHYDRIN         107133	DICHLORODIFLUOROMETHANE (CFC-12)	75718	ENDOTHAL	145733
DICHLOROMETHYLPHENYLSILANE         149746         ENDRIN         72208           DICCHORVOS         62737         ENDRIN AND METABOLITES         106898           DICCOFOL         115322         EPICHLOROCHYDRIN         106898           DICENDRIN         60571         EPINEPHRINE         51434           DIETHYL CHLOROPHOSPHATE         814493         2104645         50146           DIETHYL CHLOROPHOSPHATE         814493         ETHYL CHLOROPHOSPHATE         160571         ETHYL CHLOROPHOSPHATE         160571         ETHYL CHLOROPHOSPHATE         160572         ETHYL CHLOROPHOSPHATE         160572         ETHYL CHLOROPHOSPHATE         160572         ETHYL CHLOROPORMATE         151956         ETHYL CHLOROPORMATE         151956         ETHYL CHLOROPORMATE         51796         ETHYL METHANTSULFONATE         60297         ETHYL METHANTSULFONATE         52500         ETHYL METHANTSULFONATE         52500         ETHYL METHANTSULFONATE         52500         ETHYL METHANTSULFONATE         53000         53000         ETHYL METHANTSULFONATE         52500         ETHYL METHANTSULFONATE         52500	DICHLOROMETHANE	75092	ENDOTHION	2778043
DICHICRYOS   14322   ENDRIN AND METABOLITES	DICHLOROMETHYLPHENYLSILANE	149746	ENDRIN	
DICROTOPHOS         141662         EPINEPHRINE         51434           DIELDRIN         60571         EPN         2104645           DIETHANOLAMINE         111422         EROCCALCIFEROL         50146           DIETHYL CHLOROPHOSPHATE         814493         ETHION         563122           DIETHYL PHTHALATE         84662         ETHYL CARBAMATE         51796           DIETHYLARSINE         109897         ETHYL CHLOROFORMATE         51413           DIETHYLARSINE         692422         ETHYL ETHER         60297           DIETHYLARSINE         692422         ETHYL ETHER         60297           DIETHYLARSINE         692422         ETHYL ETHER         60290           DIETHYLARSINE         692422         ETHYL ETHER         60290           DIETHYLARSINE         1642542         ETHYL ETHER         60290           DIETHYLARSINE         164542         ETHYL ETHER         60290           DIETHYLARSINE         164542         ETHYL ETHER         60290           DIETHYLERILBESTROL         56531         ETHYL ETHER         612500           DIETHYLENTIROPHENYL PHOSPHATE         311455         ETHYL ENCLORANTE         52400           DIHYDROSAFROLE         95586         ETHYLENE LORGONTHE         5380	DICHLORVOS	62737	ENDRIN AND METABOLITES	.*
DIELDRIN         60571         EPN         2104645           DIETHANOLAMINE         111422         ERGOCALCIFEROL         50146           DIETHYL CHLOROPHOSPHATE         814493         ETHION         563122           DIETHYL PHTHALATE         84662         ETHYL ACRYLATE         14085           DIETHYL SULFATE         64675         ETHYL CARBAMATE         51796           DIETHYLAMINE         109897         ETHYL ETHER         60297           DIETHYLASINE         692422         ETHYL ETHER         60297           DIETHYLSTILBESTROL         56531         ETHYL ETHER         60297           DIETHYLSTILBESTROL         56531         ETHYL METHACRYLATE         97632           DIETHYLSTILBESTROL         56531         ETHYL METHACRYLATE         97632           DICTOXIN         71636         ETHYL METHACRYLATE         52500           DIGTYCIDYL ETHER         2238075         ETHYLENEZONE         100414           DIGLYCIDYL ETHER         238075         ETHYLENE FLUOROFHYL) AMINE         538078           DIINGPROPYLFLUOROPHOSPHATE         55914         ETHYLENE GLYCOL         107211           DIMET DATE         60515         ETHYLENE GLYCOL         107211           DIMET DATE         60515         ETHYL	DICOFOL	115322	EPICHLOROHYDRIN	106898
DIETHANOLAMINE         111422         ERGOCALCIFEROL         50146           DIETHYL CHLOROPHOSPHATE         814493         ETHION         563122           DIETHYL PHTHALATE         84662         ETHYL ACRIVATE         140855           DIETHYL SULFATE         64675         ETHYL CARBAMATE         51796           DIETHYLARINE         109897         FTHYL CHLOROFORMATE         541413           DIETHYLARSINE         692422         ETHYL ETHER         60297           DIETHYLARSINE CITRATE         1642542         ETHYL METHACRYLATE         97632           DIETHYL-PRITIROPHENYL PHOSPHATE         311455         ETHYL METHACRYLATE         97632           DIETHYL-PRITIROPHENYL PHOSPHATE         311455         ETHYL INDOCYANATE         52500           DIGTOXIN         71636         FTHYLERSENE         100414           DIGYCIDYL ETHER         2238075         ETHYLENE FLUOROHYDRIN         371620           DIMETOROSARROLE         94586         ETHYLENE FLUOROHYDRIN         371620           DIMEGOR         115264         ETHYLENE FLUOROHYDRIN         371620           DIMETHYL PHOSPHOCHLORIDOTHIOATE         2524030         ETHYLENE DIAMINE-ETRACETIC ACID (EDTA)         60004           DIMETHYL PHITHALATE         131113         ETHYLENEDIAMINE-ETRACETIC ACID	DICROTOPHOS	141662	EPINEPHRINE	51434
DIETHANOLAMINE         111422         ERGOCALCIFEROL         50146           DIETHYL CHLOROPHOSPHATE         814493         ETHION         563122           DIETHYL PHTHALATE         84662         ETHYL ACRIVATE         140855           DIETHYL SULFATE         64675         ETHYL CARBAMATE         51796           DIETHYLARINE         109897         FTHYL CHLOROFORMATE         541413           DIETHYLARSINE         692422         ETHYL ETHER         60297           DIETHYLARSINE CITRATE         1642542         ETHYL METHACRYLATE         97632           DIETHYL-PRITIROPHENYL PHOSPHATE         311455         ETHYL METHACRYLATE         97632           DIETHYL-PRITIROPHENYL PHOSPHATE         311455         ETHYL INDOCYANATE         52500           DIGTOXIN         71636         FTHYLERSENE         100414           DIGYCIDYL ETHER         2238075         ETHYLENE FLUOROHYDRIN         371620           DIMETOROSARROLE         94586         ETHYLENE FLUOROHYDRIN         371620           DIMEGOR         115264         ETHYLENE FLUOROHYDRIN         371620           DIMETHYL PHOSPHOCHLORIDOTHIOATE         2524030         ETHYLENE DIAMINE-ETRACETIC ACID (EDTA)         60004           DIMETHYL PHITHALATE         131113         ETHYLENEDIAMINE-ETRACETIC ACID	DIELDRIN	60571	EPN	2104645
DIETHYL CHLOROPHOSPHATE         814493         ETHION         563122           DIETHYL PHTHALATE         84662         ETHYL ACRYLATE         140885           DIETHYL SULFATE         64675         ETHYL CARBAMATE         51796           DIETHYLARSINE         109897         ETHYL CHLOROFORMATE         541413           DIETHYLARSINE         692422         ETHYL ETHER         60297           DIETHYLPATTE         1642542         ETHYL METHANESULFONATE         62500           DIETHYL-PHTROPHENYL PHOSPHATE         311455         ETHYL METHANESULFONATE         542905           DIGITOXIN         71636         ETHYL BENZENE         100414           DIGLYCIOVIL ETHER         2238075         ETHYLENEZENE         100414           DIGLYCIOVIL ETHER         2238075         ETHYLENEZENE         100414           DIMETONOSAFROLE         94586         ETHYLENE FLUOROFTHYL) AMINE         538078           DIMEDHOSPOPUFUFULOROPHOSPHATE         55914         ETHYLENE GLYCOL         107211           DIMETONATE         60515         ETHYLENE GLYCOL         107211           DIMEFONATE         60515         ETHYLENE GLYCOL         107211           DIMETHYL PHTHALATE         13113         ETHYLENE GLYCOL         10733           DIMETHY	DIETHANOLAMINE			
DIETHYL PHTHALATE         84662         ETHYL ACRYLATE         140885           DIETHYL SULFATE         64675         ETHYL CARBAMATE         51796           DIETHYLAMINE         109897         ETHYL CHLOROFORMATE         541413           DIETHYLARSINE         692422         ETHYL ETHER         60297           DIETHYLCARBAMAZINE CITRATE         1642542         ETHYL METHACRYLATE         97632           DIETHYL-NITROPHENYL PHOSPHATE         311455         ETHYL METHANESULFONATE         542905           DIGITOXIN         71636         ETHYL METHANESULFONATE         542905           DIGYCIDYL ETHER         2238075         ETHYLBIS (2-CHLOROETHYL) AMINE         538078           DIHYDROSAFROLE         94586         ETHYLENE FLUOROHYDRIN         371628           DIMEFOX         115264         ETHYLENE GLYCOL         107211           DIMEFOX         115264         ETHYLENE OXIDE         75218           DIMETHYL PHOSPHOCHLORIDOTHIOATE         2524030         ETHYLENEDIAMINE         107133           DIMETHYL PHOTHALATE         131113         ETHYLENEDIAMINE ETERACETIC ACID (EDTA)         60004           DIMETHYL PHOSPHOCHLORIDE         79447         ETHYLENEDIAMINE ETERACETIC ACID (EDTA)         60004           DIMETHYL PHOSPHOCHLORIDE         79447				
DIETHYL SULFATE         64675         ETHYL CARBAMATE         51796           DIETHYLAMINE         109897         ETHYL CHLOROFORMATE         541413           DIETHYLARSINE         692422         ETHYL ETHER         60297           DIETHYLARSINE         1642542         ETHYL ETHER         60297           DIETHYLSTILBESTROL         56531         ETHYL METHACRYLATE         97632           DIETHYL-PNITROPHENYL PHOSPHATE         311455         ETHYL METHANESULFONATE         62500           DIGITOXIN         71636         ETHYLBENZENE         100414           DIGITOXIN         71636         ETHYLBENZENE         100414           DIGYCIDYL ETHER         2238075         ETHYLBENE (2-CHLOROETHYL) AMINE         538078           DIHYDROSAFROLE         94586         ETHYLENE FLUOROHYDRIN         371620           DIINEFOX         115264         ETHYLENE GLYCOL         107211           DIMEFHOATE         60515         ETHYLENE GLYCOL         107211           DIMETHYL PHOSPHOCHLORIDOTHIOATE         2524030         ETHYLENE DIAMINE         107153           DIMETHYL SULFATE         77781         ETHYLENE MINIE         151564           DIMETHYL SULFATE         77781         ETHYLENE MINIE         151564           DIMETHYL SULF			1	
DIETHYLAMINE         109897         ETHYL CHLOROFORMATE         541413           DIETHYLARSINE         692422         ETHYL ETHER         60297           DIETHYLARSINE         692422         ETHYL ETHER         60297           DIETHYLSTILBESTROL         56531         ETHYL METHACRYLATE         97632           DIETHYLSTILBESTROL         56531         ETHYL METHACRYLATE         542905           DIGITOXIN         71636         ETHYL BENEQUENE         100414           DIGLYCIDYL ETHER         2238075         ETHYLBIS (2-CHLOROFTHYL) AMINE         538078           DIHYDROSAFROLE         94586         ETHYLENE FLUOROHYDRIN         371620           DIISOPROPYLFLUOROPHOSPHATE         55914         ETHYLENE GLYCOL         107211           DIMEFOX         115264         ETHYLENE GLYCOL         107211           DIMETOATE         60515         ETHYLENE GLYCOL         107211           DIMETHYL PHOSPHOCHLORIDOTHIOATE         2524030         ETHYLENE GLYCOL         107153           DIMETHYL PHOSPHOCHLORIDOTHIOATE         2524030         ETHYLENE GLIDAMINE         151564           DIMETHYL SULFATE         77781         ETHYLENE FLUOROFA         96457           DIMETHYL SULFATE         77781         ETHYLENE FLUORIDOTEA         75218			Į.	
DIETHYLARSINE         692422         ETHYL ETHER         60297           DIETHYLCARBAMAZINE CITRATE         1642542         ETHYL METHACRYLATE         97632           DIETHYLLSTILBESTROL         56531         ETHYL METHACRYLATE         97632           DIETHYLPNITROPHENYL PHOSPHATE         311455         ETHYL METHANESULFONATE         52900           DIGITOXIN         71636         ETHYLBENZENE         100414           DIGYCIDYL ETHER         2238075         ETHYLBIS (2-CHLOROETHYL) AMINE         538078           DIHYDROSAFROLE         94586         ETHYLENE GUCOL         107211           DIMEOROPYLFLUOROPHOSPHATE         55914         ETHYLENE GUDOL         107211           DIMEFOX         115264         ETHYLENE GUDOL         107211           DIMETHYL PHOSPHOCHLORIDOTHIOATE         2524030         ETHYLENEDIAMINE         107153           DIMETHYL PHTHALATE         131113         ETHYLENELDIAMINE-TETRAACETIC ACID (EDTA)         60004           DIMETHYL SULFATE         77781         ETHYLENELTHIOUREA         96457           DIMETHYL SULFATE         77781         ETHYLENELTHIOUREA         96457           DIMETHYL SULFATE         77781         ETHYLENELTHIOUREA         96457           DIMETHYL SULFATE         77781         ETHYLENELTHIOUREA				
DIETHYLCARBAMAZINE CITRATE         1642542         ETHYL METHACRYLATE         97632           DIETHYLSTILBESTROL         56531         ETHYL METHANESULFONATE         62500           DIETHYL-PINTROPHENYL PHOSPHATE         311455         ETHYL METHANESULFONATE         52900           DIGITOXIN         71636         ETHYLBENZENE         100414           DIGYCIDYL ETHER         2238075         ETHYLBIS (2-CHLOROETHYL) AMINE         538078           DIHYDROSAFROLE         94586         ETHYLENE FLUOROHYDRIN         371620           DIISOPROPYLFLUOROPHOSPHATE         55914         ETHYLENE GLYCOL         107211           DIMEFOX         115264         ETHYLENE GLYCOL         107211           DIMETHYL PHOSPHOCHLORIDOTHIOATE         2524030         ETHYLENE OXIDE         75218           DIMETHYL PHOSPHOCHLORIDOTHIOATE         2524030         ETHYLENE DIAMINE         10713           DIMETHYL PHOSPHOCHLORIDOTHIOATE         2524030         ETHYLENEIMINE         151564           DIMETHYL PHOSPHOCHLORIDE         77781         ETHYLENEIMINE         151564           DIMETHYL PHOSPHOCHLORIDE         7781         ETHYLENEIMINE         151564           DIMETHYL PHOSPHOCHLORIDE         7781         ETHYLENEIMINE         151564           DIMETHYL PHOSPHOCHLORIDE         7				
DIETHYLSTILBESTROL         56531         ETHYL METHANESULFONATE         62500           DIETHYLP-NITROPHENYL PHOSPHATE         311455         ETHYL THIOCYANATE         542905           DIGITOXIN         71636         ETHYLBIS (2-CHLOROETHYL) AMINE         542905           DIGLYCIDYL ETHER         2238075         ETHYLBIS (2-CHLOROETHYL) AMINE         538078           DIHYDROSAFROLE         94586         ETHYLENE (2-CHLOROETHYL) AMINE         578078           DIISOPROPYLFLUOROPHOSPHATE         55914         ETHYLENE GLYCOL         107211           DIMEFOX         115264         ETHYLENE GLYCOL         107211           DIMETOATE         60015         ETHYLENE OXIDE         75218           DIMETHYL PHOSPHOCHLORIDOTHIOATE         2524030         ETHYLENEDIAMINE-TETRAACETIC ACID (EDTA)         60004           DIMETHYL PHOSPHOCHLORIDOTHIOATE         2524030         ETHYLENEDIAMINE-TETRAACETIC ACID (EDTA)         60004           DIMETHYL PHOSPHOCHLORIDE         77811         ETHYLENETHIOUREA         96457           DIMETHYL PHOSPHOCHLORIDE         79447         ETHYLENETHIOUREA         96457           DIMETHYL PHOSPHOCHLORIDE         79447         ETHYLENETHIOUREA         96457           DIMETHYL PHOSPHOCHLORIDE         79447         ETHYLENE LIQUID         74851				
DIETHYL-P-NITROPHENYL PHOSPHATE         311455         ETHYL THIOCYANATE         542905           DIGITOXIN         71636         ETHYLBENZENE         100414           DIGITOXIN         71636         ETHYLBENZENE         100414           DIGLYCIDYL ETHER         2238075         ETHYLBIS (2-CHLOROETHYL) AMINE         538078           DIHYDROSAFROLE         94586         ETHYLENE FLUOROHYDRIN         371620           DIISOPROPYLFLUOROPHOSPHATE         55914         ETHYLENE GLYCOL         107211           DIMEFOX         115264         ETHYLENE GLYCOL         107211           DIMETOATE         60515         ETHYLENE OXIDE         75218           DIMETHYL PHOSPHOCHLORIDOTHIOATE         2524030         ETHYLENEDIAMINE         107153           DIMETHYL SULFATE         131113         ETHYLENEDIAMINE         60004           DIMETHYL SULFATE         77781         ETHYLENEHIMINE         151564           DIMETHYL CARBAMOYL CHLORIDE         79447         ETHYLENEHIMINE         10010         74851           DIMETHYL PPHENYLENEDIAMINE         99989         FAMPHUR         52857           DIMETHYL PPHENYLENEDIAMINE         99989         FAMPHUR         52857           DINOTERB         1420071         FERRIC AMMONIUM CITRATE         118902<			· · · -	
DIGITOXIN         71636         ETHYLBENZENE         100414           DIGLYCIDYL ETHER         2238075         ETHYLBIS (2-CHLOROETHYL) AMINE         538078           DIHYDROSAFROLE         94586         ETHYLBIS (2-CHLOROETHYL) AMINE         538078           DIISOPROPYLFLUOROPHOSPHATE         94586         ETHYLENE ELUOROHYDRIN         371620           DIMETOX         115264         ETHYLENE GXIDE         75218           DIMETHOATE         60515         ETHYLENE OXIDE         75218           DIMETHYL PHOSPHOCHLORIDOTHIOATE         2524030         ETHYLENEDIAMINE         107153           DIMETHYL PHTHALATE         131113         ETHYLENEDIAMINE         151564           DIMETHYL SULFATE         77781         ETHYLENEHIMIRE         151564           DIMETHYL CARBAMOYL CHLORIDE         79447         ETHYLENE, LIQUID         74851           DIMETHYL PHENYLENEDIAMINE         99447         ETHYLENE, LIQUID         74851           DIMETHYL-PPHENYLENEDIAMINE         99989         FAMPHUR         52857           DIMOTERB         88857         FENSULFOTHION         122145           DINOTERB         1420071         FERRIC AMMONIUM CITRATE         1185575           DIQUAT         2764729         FEUORACETIAE ACID, SODIUM SALT         62748				
DIGLYCIDYL ETHER         2238075         ETHYLBIS (2-CHLOROETHYL) AMINE         538078           DIHYDROSAFROLE         94586         ETHYLENE FLUOROHYDRIN         371620           DIISOPROPYLFLUOROPHOSPHATE         55914         ETHYLENE GLYCOL         107211           DIMEFOX         115264         ETHYLENE OXIDE         75218           DIMETHYL PHOSPHOCHLORIDOTHIOATE         2524030         ETHYLENE DIAMINE         107153           DIMETHYL PHOSPHOCHLORIDOTHIOATE         2524030         ETHYLENE ELIMINE         107153           DIMETHYL PHOSPHOCHLORIDOTHIOATE         2524030         ETHYLENE ELIMINE         107153           DIMETHYL PHTHALATE         131113         ETHYLENE ELIMINE         151564           DIMETHYL SULFATE         77781         ETHYLENE ELIMINE         151564           DIMETHYL SULFATE         77781         ETHYLENE ELIMINE         96457           DIMETHYL SULFATE         7781         ETHYLENE ELIMINE         151564           DIMETHYL SULFATE         77781         ETHYLENE ELIMINE			· · · · · · · ·	
DIHYDROSAFROLE         94586         ETHYLENE FLUOROHYDRIN         371620           DIISOPROPYLFLUOROPHOSPHATE         55914         ETHYLENE GLYCOL         107211           DIMEFOX         115264         ETHYLENE GLYCOL         107211           DIMETHOATE         60515         ETHYLENE OXIDE         75218           DIMETHYL PHOSPHOCHLORIDOTHIOATE         2524030         ETHYLENEDIAMINE         107153           DIMETHYL PHTHALATE         131113         ETHYLENEDIAMINE.         151564           DIMETHYL SULFATE         77781         ETHYLENEHIHOUREA         96457           DIMETHYLCARBAMOYL CHLORIDE         79447         ETHYLENE, LIQUID         74851           DIMETHYLOROSILANE         75785         ETHYLIDENE DICHLORIDE         75343           DIMETHYLP-PHENYLENEDIAMINE         99989         FAMPHUR         52857           DIMOTEILAN         644644         FENTIROTHION         122145           DINOTERB         1420071         FERRIC AMMONIUM CITRATE         1185575           DIOXATHION         78342         FERRIC AMMONIUM OXALATE         2944674           DIPHACINONE         82666         FLUENETIL         4301502           DIQUAT         2764729         FLUORACETATE ACID, SODIUM SALT         62748 <t< td=""><td></td><td></td><td></td><td></td></t<>				
DIISOPROPYLFLUOROPHOSPHATE         55914         ETHYLENE GLYCOL         107211           DIMEFOX         115264         ETHYLENE OXIDE         75218           DIMETHOATE         60515         ETHYLENEDIAMINE         107153           DIMETHYL PHOSPHOCHLORIDOTHIOATE         2524030         ETHYLENEDIAMINE-TETRAACETIC ACID (EDTA)         60004           DIMETHYL SULFATE         131113         ETHYLENEIMINE         151564           DIMETHYL SULFATE         79447         ETHYLENETHIOUREA         96457           DIMETHYLCARBAMOYL CHLORIDE         79447         ETHYLENE, LIQUID         74851           DIMETHYLORICHIOROSILANE         75785         ETHYLIDENE DICHLORIDE         75343           DIMETHYL-P-PHENYLENEDIAMINE         99989         FAMPHUR         52857           DIMOTILIAN         644644         FENITROTHION         1122145           DINOSEB         88857         FENSULFOTHION         115902           DINOTERB         1420071         FERRIC AMMONIUM CITRATE         1185575           DIQUAT         2764729         FLUORETURON         2164172           DIQUAT         2764729         FLUORETURON         2164172           DIZUFOTON         298044         FLUOROACETAMIDE         640197           DITHIAZANINE I			· ·	
DIMEFOX         115264         ETHYLENE OXIDE         75218           DIMETHOATE         60515         ETHYLENE DIAMINE         107153           DIMETHYL PHOSPHOCHLORIDOTHIOATE         2524030         ETHYLENEDIAMINE TETRAACETIC ACID (EDTA)         60004           DIMETHYL PHTHALATE         131113         ETHYLENEIMINE         151564           DIMETHYL SULFATE         77781         ETHYLENEIMINE         96457           DIMETHYLCARBAMOYL CHLORIDE         79447         ETHYLENE, LIQUID         74851           DIMETHYLDICHLOROSILANE         75785         ETHYLIDENE DICHLORIDE         75343           DIMETHYLP-PHENYLENEDIAMINE         99989         FAMPHUR         52857           DIMETHYLP-PHENYLENEDIAMINE         99989         FAMPHUR         52857           DIMETHYLP-PHENYLENEDIAMINE         99989         FAMPHUR         52857           DIMETHYLP-PHENYLENEDIAMINE         99989         FAMPHUR         52857           DIMETHYLP-PHENYLENEDIAMINE         644644         FENITROTHION         112945           DIMETHYLP-PHENYLENEDIAMINE         99989         FAMPHUR         52857           DIMETHYLP-PHENYLENEDIAMINE         644644         FENITROTHION         122145           DIMETHYLP-PHENYLENEDIAMINE         644644         FENITROTHION <t< td=""><td></td><td></td><td>1</td><td></td></t<>			1	
DIMETHOATE         60515         ETHYLENEDIAMINE         107153           DIMETHYL PHOSPHOCHLORIDOTHIOATE         2524030         ETHYLENEDIAMINE         107153           DIMETHYL PHTHALATE         131113         ETHYLENEDIAMINE-TETRAACETIC ACID (EDTA)         60004           DIMETHYL SULFATE         77781         ETHYLENELIMINE         151564           DIMETHYLCARBAMOYL CHLORIDE         79447         ETHYLENELIQUID         74851           DIMETHYLDICHLOROSILANE         75785         ETHYLIDENE DICHLORIDE         75343           DIMETHYLP-PHENYLENEDIAMINE         99989         FAMPHUR         52857           DIMETILAN         644644         FENTROTHION         122145           DINOSEB         88857         FENSULFOTHION         115902           DINOTERB         1420071         FERRIC AMMONIUM CITRATE         1185575           DIOXATHION         78342         FERRIC AMMONIUM OXALATE         2944674           DIQUAT         2764729         FLUOMETURON         2164172           DIQUAT         85007         FLUORACETATE ACID, SODIUM SALT         62748           DISULFOTON         298044         FLUOROACETIC ACID         14490           DITHIAZANINE IODIDE         514738         FLUOROACETIC CHLORIDE         359068				
DIMETHYL PHOSPHOCHLORIDOTHIOATE         2524030         ETHYLENEDIAMINE-TETRAACETIC ACID (EDTA)         60004           DIMETHYL PHTHALATE         131113         ETHYLENEIMINE         151564           DIMETHYL SULFATE         77781         ETHYLENEIMINE         96457           DIMETHYLCARBAMOYL CHLORIDE         79447         ETHYLENE, LIQUID         74851           DIMETHYLPPHENYLENEDIAMINE         99989         FAMPHUR         52857           DIMETHILAN         644644         FENITROTHION         122145           DINOSEB         88857         FERSULFOTHION         115902           DINOTERB         1420071         FERRIC AMMONIUM CITRATE         1185575           DIQUAT         2764729         FLUORETIIL         4301502           DIQUAT         2764729         FLUORETURON         2164172           DIQUAT         85007         FLUORENE         86737           DISULFOTON         298044         FLUORENE         86737           DISULFOTON         298044         FLUOROACETAMIDE         640197           DITHIAZANINE IODIDE         514738         FLUOROACETIC ACID         144490           DITHIOBIURET         541537         FLUOROACETYL CHLORIDE         359068           DIURON         330541 <t< td=""><td></td><td></td><td>·-</td><td></td></t<>			·-	
DIMETHYL PHTHALATE         131113         ETHYLENEIMINE         151564           DIMETHYL SULFATE         77781         ETHYLENETHIOUREA         96457           DIMETHYLCARBAMOYL CHLORIDE         79447         ETHYLENE, LIQUID         74851           DIMETHYLPPHENYLENEDIAMINE         75785         ETHYLIDENE DICHLORIDE         75343           DIMETHYL-PPHENYLENEDIAMINE         99989         FAMPHUR         52857           DIMETILAN         644644         FENITROTHION         122145           DINOSEB         88857         FENSULFOTHION         115902           DINOTERB         1420071         FERRIC AMMONIUM CITRATE         1185575           DIOXATHION         78342         FERRIC AMMONIUM OXALATE         2944674           DIQUAT         2764729         FLUORETIL         4301502           DIQUAT         85007         FLUORACETATE ACID, SODIUM SALT         62748           DISULFOTON         298044         FLUORENE         86737           DISULFOTON         298044         FLUOROACETAMIDE         640197           DITHIOBIURET         541537         FLUOROACETIC ACID         144490           DITHIOBIURET         541537         FLUOROACETYL CHLORIDE         359068           DIURON ,         330541			1	
DIMETHYL SULFATE         77781         ETHYLENETHIOUREA         96457           DIMETHYLCARBAMOYL CHLORIDE         79447         ETHYLENE, LIQUID         74851           DIMETHYLDICHLOROSILANE         75785         ETHYLIDENE DICHLORIDE         75343           DIMETHYL-P-PHENYLENEDIAMINE         99989         FAMPHUR         52857           DIMETILAN         644644         FENITROTHION         122145           DINOSEB         88857         FENSULFOTHION         115902           DINOTERB         1420071         FERRIC AMMONIUM CITRATE         1185575           DIOXATHION         78342         FERRIC AMMONIUM OXALATE         2944674           DIQUAT         2764729         FLUOMETURON         2164172           DIQUAT         85007         FLUORACETATE ACID, SODIUM SALT         62748           DIRECT BLUE 6         2602462         FLUORENE         86737           DISULFOTON         298044         FLUOROACETAMIDE         640197           DITHIAZANINE IODIDE         514738         FLUOROACETIC ACID         144490           DITHIOBIURET         541537         FLUOROACETYL CHLORIDE         359068           DIURON ,         330541         FLUOROURACIL         51218           DIVOCTYL PHTHALATE         1178			1	
DIMETHYLCARBAMOYL CHLORIDE         79447         ETHYLENE, LIQUID         74851           DIMETHYLDICHLOROSILANE         75785         ETHYLIDENE DICHLORIDE         75343           DIMETHYL-P-PHENYLENEDIAMINE         99989         FAMPHUR         52857           DIMETILAN         644644         FENITROTHION         122145           DINOSEB         88857         FENSULFOTHION         115902           DINOTERB         1420071         FERRIC AMMONIUM CITRATE         1185575           DIOXATHION         78342         FERRIC AMMONIUM CITRATE         2944674           DIPHACINONE         82666         FLUENETIIL         4301502           DIQUAT         2764729         FLUOMETURON         2164172           DIQUAT         85007         FLUORACETATE ACID, SODIUM SALT         62748           DIRECT BLUE 6         2602462         FLUORENE         86737           DISULFOTON         298044         FLUOROACETAMIDE         640197           DITHIAZANINE IODIDE         514738         FLUOROACETIC ACID         144490           DITHIOBIURET         541537         FLUOROACETYL CHLORIDE         359068           DIURON ,         330541         FLUOROACETYL CHLORIDE         51218           DIN-OCTYL PHTHALATE         11784				
DIMETHYLDICHLOROSILANE         75785         ETHYLIDENE DICHLORIDE         75343           DIMETHYL-P-PHENYLENEDIAMINE         99989         FAMPHUR         52857           DIMETILAN         644644         FENITROTHION         122145           DINOSEB         88857         FENSULFOTHION         115902           DINOTERB         1420071         FERRIC AMMONIUM CITRATE         1185575           DIOXATHION         78342         FERRIC AMMONIUM OXALATE         2944674           DIPHACINONE         82666         FLUENETIL         4301502           DIQUAT         2764729         FLUORETURON         2164172           DIQUAT         85007         FLUORACETATE ACID, SODIUM SALT         62748           DISULFOTON         298044         FLUOROACETAMIDE         640197           DITHIAZANINE IODIDE         514738         FLUOROACETIC ACID         144490           DITHIOBIURET         541537         FLUOROACETYL CHLORIDE         359068           DIURON ,         330541         FLUOROURACIL         51218           DIVOCTYL PHTHALATE         117817         FONMALDEHYDE         50000				
DIMETHYL-P-PHENYLENEDIAMINE         99989         FAMPHUR         52857           DIMETILAN         644644         FENITROTHION         122145           DINOSEB         88857         FENSULFOTHION         115902           DINOTERB         1420071         FERRIC AMMONIUM CITRATE         1185575           DIOXATHION         78342         FERRIC AMMONIUM OXALATE         2944674           DIPHACINONE         82666         FLUENETIL         4301502           DIQUAT         2764729         FLUOMETURON         2164172           DIQUAT         85007         FLUORACETATE ACID, SODIUM SALT         62748           DIRECT BLUE 6         2602462         FLUORENE         86737           DISULFOTON         298044         FLUOROACETAMIDE         640197           DITHIAZANINE IODIDE         514738         FLUOROACETIC ACID         144490           DITHIOBIURET         541537         FLUOROACETYL CHLORIDE         359068           DIURON ,         330541         FLUOROURACIL         51218           DIVOCTYL PHTHALATE         117817         FONOFOS         944229           DIN-OCTYL PHTHALATE         117840         FORMALDEHYDE         50000			l .	
DIMETILAN         644644         FENITROTHION         122145           DINOSEB         88857         FENSULFOTHION         115902           DINOTERB         1420071         FERRIC AMMONIUM CITRATE         1185575           DIOXATHION         78342         FERRIC AMMONIUM OXALATE         2944674           DIPHACINONE         82666         FLUENETIL         4301502           DIQUAT         2764729         FLUOMETURON         2164172           DIRECT BLUE 6         2602462         FLUORACETATE ACID, SODIUM SALT         62748           DISULFOTON         298044         FLUOROACETAMIDE         640197           DITHIAZANINE IODIDE         514738         FLUOROACETIC ACID         144490           DITHIOBIURET         541537         FLUOROACETYL CHLORIDE         359068           DIURON         330541         FLUOROURACIL         51218           DI(2-ETHYLHEXYL) PHTHLATATE         117817         FONOFOS         944229           DI-N-OCTYL PHTHALATE         117840         FORMALDEHYDE         50000				
DINOSEB         88857         FENSULFOTHION         115902           DINOTERB         1420071         FERRIC AMMONIUM CITRATE         1185575           DIOXATHION         78342         FERRIC AMMONIUM OXALATE         2944674           DIPHACINONE         82666         FLUENETIL         4301502           DIQUAT         2764729         FLUOMETURON         2164172           DIRECT BLUE 6         2602462         FLUORACETATE ACID, SODIUM SALT         62748           DISULFOTON         298044         FLUOROACETAMIDE         640197           DITHIAZANINE IODIDE         514738         FLUOROACETIC ACID         144490           DITHIOBIURET         541537         FLUOROACETYL CHLORIDE         359068           DIURON 1         330541         FLUOROURACIL         51218           DI(2-ETHYLHEXYL) PHTHLATATE         117817         FONOFOS         944229           DI-N-OCTYL PHTHALATE         117840         FORMALDEHYDE         50000				
DINOTERB         1420071         FERRIC AMMONIUM CITRATE         1185575           DIOXATHION         78342         FERRIC AMMONIUM OXALATE         2944674           DIPHACINONE         82666         FLUENETIL         4301502           DIQUAT         2764729         FLUOMETURON         2164172           DIQUAT         85007         FLUORACETATE ACID, SODIUM SALT         62748           DIRECT BLUE 6         2602462         FLUORENE         86737           DISULFOTON         298044         FLUOROACETAMIDE         640197           DITHIAZANINE IODIDE         514738         FLUOROACETIC ACID         144490           DITHIOBIURET         541537         FLUOROACETYL CHLORIDE         359068           DIURON ,         330541         FLUOROURACIL         51218           DI(2-ETHYLHEXYL) PHTHALATE         117817         FONOFOS         944229           DI-N-OCTYL PHTHALATE         117840         FORMALDEHYDE         50000				
DIOXATHION         78342         FERRIC AMMONIUM OXALATE         2944674           DIPHACINONE         82666         FLUENETIL         4301502           DIQUAT         2764729         FLUOMETURON         2164172           DIQUAT         85007         FLUORACETATE ACID, SODIUM SALT         62748           DIRECT BLUE 6         2602462         FLUORENE         86737           DISULFOTON         298044         FLUOROACETAMIDE         640197           DITHIAZANINE IODIDE         514738         FLUOROACETIC ACID         144490           DITHIOBIURET         541537         FLUOROACETYL CHLORIDE         359068           DIURON ,         330541         FLUOROURACIL         51218           DI(2-ETHYLHEXYL) PHTHALATE         117817         FONOFOS         944229           DI-N-OCTYL PHTHALATE         117840         FORMALDEHYDE         50000				
DIPHACINONE         82666         FLUENETIL         4301502           DIQUAT         2764729         FLUOMETURON         2164172           DIQUAT         85007         FLUORACETATE ACID, SODIUM SALT         62748           DIRECT BLUE 6         2602462         FLUORENE         86737           DISULFOTON         298044         FLUOROACETAMIDE         640197           DITHIAZANINE IODIDE         514738         FLUOROACETIC ACID         144490           DITHIOBIURET         541537         FLUOROACETYL CHLORIDE         359068           DIURON ,         330541         FLUOROURACIL         51218           DI(2-ETHYLHEXYL) PHTHALATE         117817         FONOFOS         944229           DI-N-OCTYL PHTHALATE         117840         FORMALDEHYDE         50000			•	
DIQUAT         2764729         FLUOMETURON         2164172           DIQUAT         85007         FLUORACETATE ACID, SODIUM SALT         62748           DIRECT BLUE 6         2602462         FLUORENE         86737           DISULFOTON         298044         FLUOROACETAMIDE         640197           DITHIAZANINE IODIDE         514738         FLUOROACETIC ACID         144490           DITHIOBIURET         541537         FLUOROACETYL CHLORIDE         359068           DIURON ,         330541         FLUOROURACIL         51218           DI(2-ETHYLHEXYL) PHTHALATE         117817         FONOFOS         944229           DI-N-OCTYL PHTHALATE         117840         FORMALDEHYDE         50000			,	
DIQUAT         85007         FLUORACETATE ACID, SODIUM SALT         62748           DIRECT BLUE 6         2602462         FLUORENE         86737           DISULFOTON         298044         FLUOROACETAMIDE         640197           DITHIAZANINE IODIDE         514738         FLUOROACETIC ACID         144490           DITHIOBIURET         541537         FLUOROACETYL CHLORIDE         359068           DIURON ,         330541         FLUOROURACIL         51218           DI(2-ETHYLHEXYL) PHTHALATE         117817         FONOFOS         944229           DI-N-OCTYL PHTHALATE         117840         FORMALDEHYDE         50000				
DIRECT BLUE 6         2602462         FLUORENE         86737           DISULFOTON         298044         FLUOROACETAMIDE         640197           DITHIAZANINE IODIDE         514738         FLUOROACETIC ACID         144490           DITHIOBIURET         541537         FLUOROACETYL CHLORIDE         359068           DIURON         330541         FLUOROURACIL         51218           DI(2-ETHYLHEXYL) PHTHALATE         117817         FONOFOS         944229           DI-N-OCTYL PHTHALATE         117840         FORMALDEHYDE         500000	•		<u> </u>	
DISULFOTON 298044 FLUOROACETAMIDE 640197 DITHIAZANINE IODIDE 514738 FLUOROACETIC ACID 144490 DITHIOBIURET 541537 FLUOROACETYL CHLORIDE 359068 DIURON , 330541 FLUOROURACIL 51218 DI(2-ETHYLHEXYL) PHTHLATATE 117817 FONOFOS 944229 DI-N-OCTYL PHTHALATE 117840 FORMALDEHYDE 50000	-		<u>'</u>	
DITHIAZANINE IODIDE 514738 FLUOROACETIC ACID 144490 DITHIOBIURET 541537 FLUOROACETYL CHLORIDE 359068 DIURON , 330541 FLUOROURACIL 51218 DI(2-ETHYLHEXYL) PHTHLATATE 117817 FONOFOS 944229 DI-N-OCTYL PHTHALATE 117840 FORMALDEHYDE 50000			i .	
DITHIOBIURET 541537 FLUOROACETYL CHLORIDE 359068 DIURON , 330541 FLUOROURACIL 51218 DI(2-ETHYLHEXYL) PHTHLATATE 117817 FONOFOS 944229 DI-N-OCTYL PHTHALATE 117840 FORMALDEHYDE 50000	•			
DIURON , 330541 FLUOROURACIL 51218 DI(2-ETHYLHEXYL) PHTHLATATE 117817 FONOFOS 944229 DI-N-OCTYL PHTHALATE 117840 FORMALDEHYDE 50000			· · · · · · · · · · · · · · · · · · ·	
DI(2-ETHYLHEXYL) PHTHLATATE 117817 FONOFOS 944229 DI-N-OCTYL PHTHALATE 117840 FORMALDEHYDE 50000			1	
DI-N-OCTYL PHTHALATE 117840 FORMALDEHYDE 50000				
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EMETINE, DIHYDROCHLORIDE 316427 FORMALDEHYDE CYANOHYDRIN 107164				
	EMETINE, DIHYDROCHLORIDE	316427	FORMALDEHYDE CYANOHYDRIN	107164

MATERIAL	CAS NUMBER	MATERIAL	CAS NUMBER
FORMIC ACID	64186	KEPONE	143500
FORMOTHION	2540821	LACTONITRILE	78977
FUBERIDAZOLE	3878191	LASIOCARPINE	303344
FULMINIC ACID, MERCURY(2+) SALT	628864	LEAD COMPOUNDS	
FUMARIC ACID	110178	LEAD STEARATE	1072351
FURAN	110009	LEAD SUBACETATE	1335326
GLYCIDYLADEHYDE	765344	LEAD SULFIDE	1314870
GLYCOL ETHERS		LEAD THIOCYANATE	592870
GUANIDINE, N-METHYL-N'-NITRO-N-NITROSO	70257	LEWISITE	541253
GUTHION	86500	LINDANE	58899
HALOETHERS		MALATHION	121755
HALOMETHANES		MALEIC ACID	110167
HEPTACHLOR	76448	MALEIC ANHYDRIDE	108316
HEPTACHLOR AND METABOLITES		MALONONITRILE	109773
HEPTACHLOR EPOXIDE	1024573	MANGANESE COMPOUNDS	
HEXACHLOROBENZENE	118741	MELPHALAN	148823
HEXACHLOROBUTADIENE	87683	MEPHOSFOLAN	950107
HEXACHLOROCYCLOPENTADIENE	77474	MERCAPTODIMETHUR	2032657
HEXACHLOROETHANE	67721	MERCURIC ACETATE	1600277
HEXACHLORONAPHTHALENE	1335871	MERCURIC CYANIDE	592041
HEXACHLOROPHENE	70304	MERCURIC THIOCYANATE	592858
HEXACHLOROPROPENE	1888717	- MERCURY COMPOUNDS	
HEXAETHYL TETRAPHOSPHATE	757584	METHACRYLIC ANHYDRIDE	760930
HEXAMETHYLPHOSPHORAMIDE	680319	METHACRYLONITRILE	126987
HYDRAZINE	302012	METHACRYLOYL CHLORIDE	920467
HYDROGEN CYANIDE	74908	METHANESULFONYL FLOURIDE	558258
HYDROQUINONE	123319	METHANOL	67561
INDENO(1,2,3-CD)PYRENE	193395	METHAPYRILĖNE	91805
ISOAMYL ACETATE	123922	METHIDATHION	950378
ISOBENZAN .	297789	METHOXYCHLOR	72435
ISOBUTYL ACETATE	110190	METHOXYETHYLMERCURIC ACETATE	151382
ISOBUTYL ALCOHOL	78831	METHYL 2-CHLOROACRYLATE	80637
ISOBUTYLAMINE	78819	METHYL ACRYLATE	96333
ISOBUTYRALDEHYDE	78842	METHYL CHLOROFORMATE	79221
ISOBUTYRIC ACID	79312	METHYL ETHYL KETONE (MEK)	78933
ISOBUTYRONITRILE	78820	METHYL HYDRAZINE	60344
ISODRIN	465736	METHYL IODIDE	74884
ISOPHORONE	78591	METHYL ISOBUTYL KETONE	108101
ISOPHORONE DIISOCYANATE	4098719	METHYL ISOCYANATE	624839
ISOPRENE	78795	METHYL ISOTHIOCYANATE	556616
ISOPROPYL ALCOHOL (313-MFG ONLY		METHYL METHACRYLATE	80626
BY STRONG ACID)	67630	METHYL PHENKAPTON	3735237
ISOPROPYL CHLOROFORMATE	108236	METHYL PHOSPHONIC DICHLORIDE	676971
ISOPROPYLMETHYLPYRAZOLYL	119380	METHYL TERT-BUTYL ETHER	1634044
DIMETHYLCARBAMATE		METHYL THIOCYANATE	556649
ISOSAFROLE	120581	METHYL VINYL KETONE	78944

MATERIAL	CAS NUMBER	MATERIAL	CAS NUMBER
METHYLENE BIS(PHENYLISOCYANATE)	101688	N-NITROSOMETHYLVINYLAMINE	4549400
METHYLENE BROMIDE	74953	N-NITROSOMORPHOLINE	59892
METHYLMERCAPTAN	74931	N-NITROSOPIPERIDINE	100754
METHYLMERCURIC DICYANAMIDE	502396	N-NITROSOPYRROLIDINE	930552
METHYLTHIOURACIL	56042	N-NITROSO-N-ETHYLUREA	759739
METHYLTRICHLOROSILANE	75796	N-NITROSO-N-METHYLUREA	684935
METOLCARB	1129415	N-NITROSO-N-METHYLURETHANE	615532
MEXACARBATE	315184	N-(AMINOTHIOXOMETHYL) ACETAMIDE	591082
michler's ketone	90948	OCTACHLORONAPHTHALENE	2234131
MITOMYCIN C	50077	OCTAMETHYLDIPHOSPHORAMIDE	152169
molybdenum trioxide	1313275	ORGANORHODIUM COMPLEX	
monoethylamine	75047	OUABAIN	630604
MONOMETHYLAMINE	74895	OXYDISULFOTON	2497076
MUSCIMOL	2763964	O,O-DIETHYL O-PRYAZINYL	297972
MUSTARD GAS	505602	PHOSPHOROTHIOATE	
M-CRESOL	108394	O,O-DIETHYL-S-METHYL-DITHIOPHOSPHATE	3288582
m-dinitrobenzene	99650	O,O-DIMETHYLPHOSPHOROTHIOIC ACID	2587908
M-NITROPHENOL	554847	O-ANISIDINE	90040
m-nitrotoluene	99081	O-ANISIDINE HYDROCHLORIDE	134292
M-XYLENE	108383	O-CRESOL	95487
NALED	300765	O-DINTIROBENZENE	528290
NAPHTHALENE	91203	O-ETHYL O-(4-(METHYLTHIO)ETHYL)	2703131
NAPHTHENIC ACID	1338245	PHENMETHYL-PHOSPHOPHONATHIOIC	
nickel compounds	•	ACID	
NICKEL CYANIDE	557197	O-NITROTOLUENE	88722
NICOTINE	54115	O-TOLUIDINE	95534
NICOTINE SULFATE	65305	O-TOLUIDINE HYDROCHLORIDE	636215
NITRILOTRIACETIC ACID	139139	O-XYLENE	95476
NITROBENZENE	98953	O-(4-NITROPHENYL) O-PHENYL	2665307
nitrocyclohexane	1122607	-METHYLPHOSPHONOTHIOIC ACID	
NITROFEN	1836755	PARALDEHYDE	123637
NITROGEN MUSTARD	51752	PARAQUAT	1910425
nitroglycerine	55630	PARAQUAT METHOSULFATE	2074502
nitrophenols		PARATHION	56382
nitrosamines		PARATHION-METHYL	298000
nitrotoluene	1321126	PENTACHLOROBENZENE	608935
NORBORMIDE	991424	PENTACHLOROETHANE	76017
n'-nitrosodimethylamine	62759	PENTACHLOROPHENOL	87865
N,N'-DIBUTYLHEXAMETHYLENEDIAMINE	4835114	PENTADECYLAMINE	2570265
N,N'-DIETHYLHYDRAZINE	1615801	PERACETIC ACID (>60% CAA 304)	79210
N,N-DIMETHYLANILINE	121697	PHENACETIN	62442
N-BUTYL ALCOHOL	71363	PHENANTHRENE	85018
n-nitrosodiethylamine	55185	PHENOL	108952
n-nitrosodiphenylamine	86306	PHENYLARSONOUS DICHLORIDE	696286
N-NITROSODI-N-BUTYLAMINE	924163	PHENYLHYDRAZINE HYDROCHLORIDE	59881
N-NITROSODI-N-PROPYLAMINE	621647	PHENYLMERCURY ACETATE	62384

MATERIAL	CAS NUMBER	MATERIAL	CAS NUMBER
PHENYLSILATRANE	2097190	P-PHENYLENEDIAMINE	106503
PHENYLTHIOUREA	103855	P-XYLENE	106423
PHORATE	298022	QUINOLINE	91225
PHOSACETIM	4104147	QUINONE	106514
PHOSFOLAN	947024	QUINTOZENE	82688
PHOSGENE	75445	RESERPINE	50555
PHOSMET	732116	SACCHARIN AND SALTS	81072
PHOSPHORUS PENTASULFIDE	1314803	(313 - MANUFACTURE ONLY)	
PHOSPHORUS PENTOXIDE	1314563	SAFROLE	94597
PHTHALATE ESTERS		SARIN	107448
PHTHALIC ANHYDRIDE	85449	SEC-AMYL ACETATE	626380
PHYSOSTIGMINE	57476	SEC-BUTYL ACETATE	105464
PHYSOSTIGMINE, SALICYLATE (1:1)	57647	SEC-BUTYL ALCOHOL	78922
PICRIC ACID	88891	SEC-BUTYLAMINE	513495
PIPERIDINE	110894	SELENIUM COMPOUNDS	
POLYBROMINATED BIPHENYLS (PBB'S)		SELENOUREA	630104
POLYCHLORINATED BIPHENYLS (PCBS)	1336363	SEMICARBAZIDE HYDROCHLORIDE	563417
POLYNUCLEAR AROMATIC HYDROCARBON	S	SILVER COMPOUNDS	
POTASSIUM CYANIDE	151508	SILVER CYANIDE	506649
POTASSIUM HYDROXIDE	1310583	SODIUM BIFLUORIDE	1333831
POTASSIUM SILVER CYANIDE	506616	SODIUM CYANIDE (NA(CN))	143339
PROMECARB	2631370	SODIUM HYDROXIDE (SOLUTION)	1310732
PROPANE SULTONE	1120714	STRYCHNINE AND SALTS	57249
PROPARGITE	2312358	STRYCHNINE, SULFATE	60413
PROPARGYL ALCOHOL	107197	STYRENE OXIDE	96093
PROPARGYL BROMIDE	106967	STYRENE (MONOMER)	100425
PROPIONALDEHYDE	123386	TABUN	77816
PROPIONIC ACID	79094	TERT-AMYL ACETATE	625161
PROPIONIC ANHYDRIDE	123626	TERT-BUTYL ACETATE	540885
PROPIONITRILE	107120	TERT-BUTYL ALCOHOL	75650
PROPOXUR	114261	TERT-BUTYLAMINE	75649
PROPYL CHLOROFORMATE	109615	TETRACHLOROETHYLENE	127184
PROPYLENE	115071	TETRACHLORVINPHOS	961115
PROPYLENE OXIDE	75569	TETRAETHYL PYROPHOSPHATE (TEPP)	107493
PROPYLENEIMINE	75558	TETRAETHYLDITHIOPYROPHOSPHATE	3689245
PROTHOATE	2275185	TETRAETHYLLEAD	78002
PYRENE	129000	TETRAETHYLTIN	597648
PYRETHRINS	121211	TETRAHYDROFURAN	109999
PYRETHRINS	121299	TETRAMETHYLLEAD	75741
PYRIDINE	110861	TETRANITROMETHANE	509148
P-ANISIDINE	. 104949	THALLIC OXIDE	1314325
P-CRESIDINE	120718	THALLIUM COMPOUNDS	
P-CRESOL	106445	THALLIUM(I) ACETATE	563688
P-DINITROBENZENE	100254	THALLOUS MALONATE	2757188
P-NITROSODIPHENYLAMINE	156105	THIOACETAMIDE	62555
P-NITROTOLUENE	99990	THIOCARBAZIDE	2231574

MATERIAL	CAS NUMBER	MATERIAL	CAS NUMBER	
THIOPEROXYDICARBONIC DIAMIDE	137268	TRIMETHYLAMINE, ANHYDROUS	75503	
THIOPHENOL	108985	TRIMETHYLCHLOROSILANE	75774	
THIOSEMICARBAZIDE	79196	TRIMETHYLOLPROPANE PHOSPHITE	824113	
THIOUREA	62566	TRIMETHYLTIN CHLORIDE	1066451	
THIOUREA, (2-METHYLPHENYL)-	614788	TRIPHENYLTIN CHLORIDE	639587	
THORIUM DIOXIDE	1314201	TRIS (2-CHLOROETHYL) AMINE	555771	
TOLUENE	108883	TRYPAN BLUE	72571	
TOLUENE 2,4-DIISOCYANATE	584849	URACIL MUSTARD	66751	
TOLUENE 2,6-DIISOCYANATE	91087	URANYL ACETATE	541093	
TOLUENEDIAMINE	823405	VALINOMYCIN	2001958	
TOLUENEDIAMINE	496720	VANADIUM PENTOXIDE	1314621	
TOLUENEDIAMINE	95807	VINYL ACETATE MONOMER	108054	
TRANS- 1,4-DICHLOROBUTENE	110576	VINYL BROMIDE	593602	
TRIAMIPHOS	1031476	VINYL CHLORIDE	75014	
TRIAZIQUONE	68768	VINYLIDENE CHLORIDE	75354	
TRICHLORFON	52686	WARFARIN	81812	
TRICHLORO (CHLOROMETHYL) SILANE	1558254	WARFARIN SODIUM	129066	
TRICHLOROACETALDEHYDE	75876	XYLENE (MIXED ISOMERS)	1330207	
TRICHLOROACETYL CHLORIDE	76028	XYLENOL	1300716	
TRICHLOROETHYLENE	79016	ZINC ACETATE	557346	
TRICHLOROETHYLSILANE	115219	ZINC BORATE	1332076	
TRICHLOROMETHANESULFENYL CHLORIDE	594423	ZINC CARBONATE	3486359	
TRICHLOROMONOFLUOROMETHANE (CFC-1	1) 75694	ZINC COMPOUNDS		
TRICHLORONATE	327980	ZINC CYANIDE	557211	
TRICHLOROPHENYLSILANE	98135	ZINC FORMATE	557415	
TRIETHOXYSILANE	998301	ZINC PHENOLSULFONATE	127822	
TRIETHYLAMINE	121448	ZINC PHOSPHIDE	1314847	
TRIFLURALIN	1582098	(4-AMINOBUTYL) DIETHOXYMETHYLSILANE	3037727	

### Appendix B

### Class 1 Toxic Constituents' Maximum Hox Histor Leachable Concentrations (MCLs)

(31 TAC Chapter 335 Subchapter R Appendix 1 Table 1)

Applicability: Class 1, 2, and 3 Waste Evaluations

class

Values are based on information contained in Federal Registers Vol. 55 / Friday, July 27, 1990; Vol. 56 / June 7, 1991; and Integrated Risk Information Systems, Environmental Protection Agency, and 40 CFR 264 Appendix 9.

		Concentration			Concentration
Compound	CAS No.	(mg/l)	Compound	CAS No.	(mg/l)
Acetone	67-64-1	400	1,3-Dichloropropene	542-75-6	1
Acetonitrile	75-05-8	20	2,4-Dichlorophenol	120-83-2	10
Acetophenone	98-86-2	400	2,4-Dichlorophenoxy-	94-75-7	10.0
Acrylamide	79-06-1	0.08	acetic acid (2,4-D)		
Acrylonitrile	107-13-1	0.6	Dieldrin	60-57-1	0.02
Aniline	62-53-3	60	Diethyl phthalate	84-66-2	3000
Antimony	7440-36-0	1	Dimethoate	60-51-5	70
Arsenic	7440-38-2	1.8	m-Dinitrobenzene	99-65-0	0.4
Barium	7440-39-3	100.0	2,4-Dinitrophenol	51-28-5	7
Benzene	71-43-2	0.50	2,4 -Dinitrotoluene	602-01-7	0.13
Benzidine	92-87-5	0.002	(and 2,6-, mixture)		
Beryllium	7440-41-7	0.08	1,4-Dioxane	123-91-1	30
Bis(2-chloroethyl)ether	111-44-4	0.3	Dioxins (Poly chlorinated	d dibenzo-p-dioxi	
Bis(2-ethylhexyl)	117-81-7	30	2,3,7,8-TCDD	1746-01-6	0.005
phthalate			1,2,3,7,8-PeCDD	40321-76-4	0.010
Bromodichloromethane	75-27-4	0.3	1,2,3,4,7,8-HxCDD	57653-85-7	0.050
Bromomethane	74-83-9	5	1,2,3,6,7,8-HxCDD	34465-46-8	0.050
Butylbenzyl phthalate	85-68-7	700	1,2,3,7,8,9-HxCDD		0.050
Cadmium	7440-43-9	0.5	Diphenylamine	122-39-4	90
Carbon disulfide	75-15-0	400	1,2-Diphenylhydrazine	122-66-7	0.4
Carbon tetrachloride	56-23-5	0.50	Disulfoton	298-04-4	0.1
Chlordane ·	57-74-9	0.03	Endosulfan	959-98-8	0.2
Chlorobenzene	108-90-7	70	Endrin	72-20-8	.02
Chloroform	67-66-3	6.0	Epichlorohydrin	106-89-8	40
2-Chlorophenol	95-57-8	20	Ethylbenzene	100-41-4	400
Chromium	7440-47-3	5.0	Ethylene dibromide	106-93-4	0.004
m-Cresol	108-39-4	200.0*	Furans (Polychlorinated		
o-Cresol	95-48-7	200.0*	2,3,7,8-TCDF	51207-31-9	0.050
p-Cresol	106-44-5	200.0*	1,2,3,7,8-PeCDF		0.100
Cyanide	57-12-5	70	2,3,4,7,8-PeCDF		0.010
DDD	72-54-8	1	1,2,3,4,7,8-HxCDF		0.050
DDE	72-55-9	1	1,2,3,6,7,8-HxCDF		0.050
DDT	50-29-3	1	1,2,3,7,8,9-HxCDF		0.050
Dibutyl phthalate	84-74-2	400	Heptachlor	76-44-8	0.008
1,4-Dichlorobenzene	106-46-7	7.5	Heptachlor epoxide	1024-57-3	0.04
3,3-Dichlorobenzidine	91-94-1	0.8	Hexachlorobenzene	118-74-1	0.13
1,2-Dichloroethane	107-06-2	0.50	Hexachloro-1,3-butadier		0.4
Dichlorodifluoromethane	75-71-8	700	Hexachlorocyclopentad		20
1,1-Dichloroethylene	75-35-4	0.6	Hexachloroethane	67-72-1	3.0

Compound	CAS No.	Concentration (mg/l)	Compound	CAS No.	Concentration (mg/l)
Hexachlorophene	70-30-4	1	Selenium	7782-49-2	1.0
Isobutyl alcohol	78-83-1	1000	Silver	7440-22-4	5.0
Isophorone	78-59-1	90	Styrene	100-42-5	700
Lead	7439-92-1	1.5	1,1,1,2-Tetrachloroethane	630-20-6	10 -
Lindane	58 <b>-</b> 89-9	0.3	1,1,2,2-Tetrachloroethane	79-34-5	. 2
Mercury	7439-97-6	0.2	Tetrachloroethylene	12 <b>7-1</b> 8-4	0.7
Methacrylonitrile	126-98-7	0.4	2,3,4,6-Tetrachlorophenol	58-90-2	100
Methomyl	16752-77-5	90	Thiosemicarbazide	79-19-6	20
Methoxychlor	72-43-5	10.0	Toluene	108-88-3	1000
Methyl ethyl ketone	78-93-3	200.0	Toxaphene	8001-35-2	0.3
Methyl isobutyl ketone	108-10-1	200	trans-1,3-Dichloro-propene	542-75-6	1
Methylene chloride	75-09-2	50	Tribromomethane	75-25-2	70
Methyl parathion	298-00-0	0.9	(Bromoform)		
Nickel	7440-02-0	70	1,2,4-Trichlorobenzene	120-82-1	70
Nitrobenzene	98-95-3	2.0	1,1,1-Trichloroethane	71-55-6	300
N-Nitroso-di-n-butylamine	924-16-3	0.06	Trichloroethylene	79-01 <b>-</b> 6	0.5
N-Nitrosodiphenylamine	86-30-6	70	1,1,2-Trichloroethane	79-00-5	6
N-Nitrosomethylethylamir	ne10595-95-6	0.02	Trichlorofluoromethane	75-69-4	1000
N-Nitroso-n-propylamine	621-64-7	0.05	2,4,5-Trichlorophenoxy-	93-72-1	1.0
N-Nitrosopyrrolidine	930-55-2	0.2	propionic acid		
p-Phenylene diamine	106-50-3	20	- (2,4,5 TP or Silvex)		
Parathion	56-38-2	20	1,2,3-Trichloropropane	96-18-4	20
Pentachlorobenzene	608-93-5	3	2,4,5-Trichlorophenol	95-95-4	400.0
Pentachloronitrobenzene	82-68-8	10	2,4,6-Trichlorophenol	88-06-2	2
Pentachlorophenol	87-86-5	100.0	Vanadium Pentoxide	1314-62-1	30
Phenol	108-95-2	2000	Vinyl chloride	75-01-4	0.2
Pronamide	23950-58-5	300	Xylenes (all isomers)	1330-82-1	7000
Pyridine	110-86-1	4	,		

<sup>\*</sup> If o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol concentration is used. The Maximum Concentration for total cresol is 200.0 mg/l.

# Appendix C 7-Day Distilled Water Leachate Test's Maximum Contaminant Levels (MCLs)—continued

(31 TAC Chapter 335 Subchapter R APPENDIX 1 Table 3)

Applicability: Class 3 Waste Evaluations

Values obtained from 40 Code of Federal Regulations Part 141, Subparts B and G, Maximum Contaminant Levels and 40 Code of Federal Regulations Part 143, Total Dissolved Solids.

Constituent	MCL (mg/l)
Arsenic	0.05
Barium	1
Benzene	0.005
Cadmium	0.005
Carbon tetrachloride	0.005
Chlordane	0.002
Chlorobenzene	0.1
Chromium	0.1
2,4-D	0.07
Dibromochloropropane	0.0002
ortho-Dichlorobenzene	0.6
para-Dichlorobenzene	0.075
1,2-Dichloroethane	0.005
1,1-Dichloroethylene	0.007
trans-1,2-Dichloroethylene	0.1
1,2-Dichloropropane	0.005
Ethylbenzene	0.7
Heptachlor	0.0004
Heptachlor epoxide	0.0002
Lead	0.05
Mercury	0.002
Methoxychlor	0.04
Pentachlorophenol	0.001
Polychlorinated biphenyls (PCBs)	0.0005
Selenium	0.05
Silver	0.05
Styrene	0.1
Tetrachloroethylene	0.005
1,1,1-Trichloroethane	0.20
Trichloroethylene	0.005
Toluene	1
Toxaphene	0.003
2,4,5-TP (Silvex)	0.05
Vinyl chloride	0.002
Xylenes (total)	10
Total Dissolved Solids	500

## Appendix D Class 1 Toxic Constituents

If lovels meet or exceed

In its 1534d (up to class I levels)

There was to is a structure was the class III was the class II was the class III as the class II was the class

## (other than those identified in Appendix C) and Their Estimated Quantitation Limits (EQL's)

Applicability: Class 3 Waste Evaluations

This table is to be utilized by the generator in evaluating detection limits for the identified constituents. The EQL's in this table are defined as the lowest detectable levels that can be reliably achieved using the Toxicity Characteristic Leaching Procedure (TCLP) at the time of the printing of this guideline. Applicable EPA method numbers are provided and can be found in EPA Report SW-846 "Test Methods for Evaluating Solid Waste" except where noted. Please note that more than one test method may be available for a particular constituent. Synonyms are provided in brackets "[]".

Constituent	EQL (mg/l)	Method(s)	Constituent	EQL (mg/l)	Method(s)
Acetone	0.1	8240	Butylbenzyl phthalate	0.005	8060
Acetonitrile [Methyl cyanide]	0.1 0.1	8015 8030	[Benzylbutyl phthalate]	0.010 0.01	8250 8270
Acetophenone	0.001	8250	Carbon disulfide [CS2]	0.005	8240
	0.01	8270	Chloroform	0.0005 0.005	8010 8240
Acrylamide	0.005	8015	<sup>-</sup> 2-Chlorophenol	0.005	8040
Acrylonitrile	0.005	8030	[o-Chlorophenol]	0.01	8270
[Vinyl cyanide]	0.005	8240	m-Cresol	0.01	8270
Aniline [Benzyl amine]	0.01	8250	o-Cresol	0.01	8270
	0.01	8270	p-Cresol	0.01	8270
Antimony	0.2 0.3	204 6010	Cyanide	0.04	9010
	2.0 0.03	7040 7041	DDD [Dichloro-diphenyl-dichloroethane]	0.0001 0.01	8080 8250
Benzidine [Dianiline]	0.44	8250	,	0.0	8270
Beryllium	0.003	210 6010 7090	DDE [Dichloro-diphenyl- ethylene]	0.00005 0.01 0.01	8080 8250 8270
	0.002	7091	DDT [Dichloro-diphenyl-	0.0001	8080
Bis(2-chloroethyl)ether [Dichloroethyl ether]	0.05 <i>7</i> 0.01	8250 8270	trichloroethane]	0.01 0.01	8250 8270
Bis(2-ethylhexyl) phthalate	0.02 0.2	8060 8250	Dibutyl phthalate	0.005 0.01	8060 8270
primate	0.01	8270	3,3-Dichlorobenzidine	0.02	8270
Bromodichloromethane	0.001 0.005	8010 8240	Dichlorodifluoromethane	0.01 0.005	8010 8240
Bromomethane [Methylbromide]	0.001 0.005	8010 8240	1,1-Dichloroethylene	0.001 0.005	8010 8240

0.005  2,4-Dichlorophenol  0.05 0.01  Dieldrin  0.00005 0.01  Diethyl phthalate  0.005 0.01  Dimethoate  0.01  m-Dinitrobenzene  2,4-Dinitrophenol  0.05 0.05  2,4-Dinitrotoluene  0.0002	8010 8240 8040 8270 8080 8270 8060 8270 8270 8270 8040 8270 8090 8270 8015	Furans (Polychlorinated dibenz 2,3,7,8-TCDF 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF Hexachlorobenzene  Hexachloro-1,3-butadiene  Hexachlorocyclopentadiene  Hexachlorocethane	0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.0005 0.0	8280 8280 8280 8280 8280 8280 8120 8270 8120 8270
Dieldrin       0.00005         0.01       0.01         Diethyl phthalate       0.005         0.01       0.01         Dimethoate       0.01         m-Dinitrobenzene       0.01         2,4-Dinitrophenol       0.15         0.05         2,4-Dinitrotoluene       0.0002	8270 8080 8270 8060 8270 8270 8270 8040 8270 8090 8270	2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF Hexachlorobenzene Hexachloro-1,3-butadiene Hexachlorocyclopentadiene	0.00001 0.00001 0.00001 0.00005 0.00 0.00	8280 8280 8280 8280 8120 8270
0.01         Diethyl phthalate       0.005         0.01         Dimethoate       0.01         m-Dinitrobenzene       0.01         2,4-Dinitrophenol       0.15         0.05         2,4-Dinitrotoluene       0.0002	8270 8060 8270 8270 8270 8040 8270 8090 8270	1,2,3,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF Hexachlorobenzene Hexachloro-1,3-butadiene Hexachlorocyclopentadiene	0.00001 0.00001 0.0005 0.0 0.005 0.01	8280 8280 8120 8270 8120
0.01  Dimethoate 0.01  m-Dinitrobenzene 0.01  2,4-Dinitrophenol 0.15	8270 8270 8270 8040 8270 8090 8270	Hexachlorocyclopentadiene	0.0 0.005 0.01 0.005	8270 8120
m-Dinitrobenzene 0.01  2,4-Dinitrophenol 0.15	8270 8040 8270 8090 8270	Hexachlorocyclopentadiene	0.01 0.005	
2,4-Dinitrophenol 0.15 0.05 2,4-Dinitrotoluene 0.0002	8040 8270 8090 8270		0.005	8270
0.05 2,4-Dinitrotoluene 0.0002	8270 8090 8270			
•	8270	Hexachloroethane	0.01	8120 8270
, , ,	1		0.0005 0.01	8120 8270
1,4-Dioxane 0.15	0013	Hexachlorophene	0.0	8270
Dioxins (Poly chlorinated		Isobutyl alcohol	0.05	8015
dibenzo-p-dioxins)	8280	Isophorone	0.06 0.01	8090 8270
1,2,3,4,7,8-HxCDD 0.00001 1,2,3,6,7,8-HxCDD 0.00001	8280 8280 8280 8280	Lindane	0.00005 0.01 0.00004 0.01	8080 8250 608 625
Diphenylamine 0.01	8270	Methacrylonitrile	0.005	8015
1,2-Diphenylhydrazine 0.2	1625	Methomyl	0.003	632
Disulfoton . 0.002	8140	Methyl ethyl ketone [MEK]	0.03	8015
0.01	8270	Metry etry ketone [MEK]	0.07	8240
	8080	Methyl isobutyl ketone [MIBK]	** 0.005	8015 8240
	8250 8080	Methylene chloride [Dichloromethane]	0.005 0.005	8010 8240
0.01	8250	Methyl parathion	0.0005	8140
Epichlorohydrin 0.06	624	Wellys paraulion	0.0003	8270
(Method 600/4-82-057; Methods For Organ Analysis In Municipal And Industrial Wastew		Nickel	0.04 0.05	249 6010
Ethylene dibromide [EDB] 0.5 (Standard Methods For Examination Of Water and Wastewater)	6231 er	Nitrobenzene	0.4 0.04 0.01 0.01	7520 8090 8250 8270
		N-Nitroso-di-n-butylamine	0.01	8270

Constituent	EQL (mg/l)	Method(s)	Constituent	EQL (mg/l)	Method(s)
N-Nitrosodiphenylamine	0.01	8270	Thiosemicarbazide (Method 821-RR-92-00	0.001	632
N-Nitrosomethylethylamine	0.02	8270	Determination of Non		
N-Nitroso-n-propylamine	0.01	8270	in Municipal and Indus	•	
N-Nitrosopyrrolidine	0.01	8270	Tribromomethane [Bromofo	-	8010
p-Phenylene diamine	0.01	8270		0.005	8240
Parathion	0.01	8270	1,2,4-Trichlorobenzene	0.01	8270
	0.0003	8140	1,1,2-Trichloroethane	0.0002	8010
Pentachlorobenzene	0.01	8270	[1,1,2-TCE]	0.005	8240
Pentachloronitrobenzene	0.01	8270	Trichlorofluoromethane [Freon 11]	0.01 0.005	8010 8240
Phenol	0.001	8040	1,2,3-Trichloropropane	0.01	8010
	0.01	8270	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	0.005	8240
Pronamide	0.01	8270	2,4,5-Trichlorophenol	0.003	8270
Pyridine	0.005 0.01	8240 8270	2,4,6-Trichlorophenol	0.005	8040
1,1,1,2-Tetrachloroethane	0.005	8010		0.01	8270
.,.,.,	0.005	8240	Vanadium Pentoxide	0.2	286
1,1,2,2-Tetrachloroethane	0.0005	8010		0.08	6010
	0.05	8240		2.0 0.04	7910 9111
2,3,4,6-Tetrachlorophenol	0.01	8270		0.04	5111

<sup>\*</sup> If o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol concentration is used.

<sup>\*\*</sup> This information not available at time of publication.

## Appendix E 7-Day Distilled Water Leachate Test

(31 TAC Chapter 335 Subchapter R Appendix 4)

Applicability: Class 3 Waste Evaluations

This test is intended only for dry, solid wastes, i.e., waste materials without any free liquids.

- 1. Place a 250 gram (dry weight) representative sample of the waste material in a 1500 milliliter Erlenmeyer flask.
- 2. Add 1 liter of deionized or distilled water into the flask and mechanically stir the material at a low speed for five (5) minutes.
- 3. Stopper the flask and allow to stand for seven (7) days.
- 4. At the end of seven (7) days, filter the supernatant solution through a .45 micron filter, collecting the supernatant into a separate flask.
- 5. Subject the filtered leachate to the appropriate analysis.

## Appendix F

(31 TAC Chapter 335 Subchapter R Appendix 3)

Applicability: All Waste

In determining a waste stream's form code, it is recommended that the generator first determine into which major category the waste stream fits (ie. inorganic liquids). The generator should then review all the form code descriptors in that category to determine which code or codes best describe the generator's waste stream. The generator should then chose, from his narrowed down list, a form code for the waste stream.

Form codes are fairly generic in their descriptions. It is possible that more than one form code may be applicable to a particular waste stream. Generators should assign the form code which best describes the waste stream. If more than one form code can "best describe" the waste stream, then the generator should choose one of those several codes.

#### Code Waste Description

#### Lab Packs

Lab Packs – Lab packs of mixed wastes, chemicals, lab wastes

001	Lab packs of old chemicals only
002	Lab packs of debris only
003	Mixed lab packs
004	Lab packs containing acute hazardous wastes
009	Other lab packs (Specify in Comments)

#### Liquids

Inorganic Liquids — Waste that is primarily inorganic and highly fluid (e.g., aqueous), with low suspended inorganic solids and low organic content

101	Aqueous waste with low solvents
102	Aqueous waste with low other toxic organics
103	Spent acid with metals
104	Spent acid without metals
105	Acidic aqueous waste
106	Caustic solution with metals but no cyanides
107	Caustic solution with metals and cyanides
108	Caustic solution with cyanides but no metals
109	Spent caustic
110	Caustic aqueous waste
111	Aqueous waste with reactive sulfides
112	Aqueous waste with other reactives
	(e.g., explosives)
113	Other aqueous waste with high dissolved solids
114	Other aqueous waste with low dissolved solids
115	Scrubber water
116	Leachate

Code	Waste Description
117	Waste liquid mercury
119	Other inorganic liquids (Specify in Comments)
198	Nonhazardous photographic chemical wastes (inorganic)
199	Brine solution that could also bear the form
•	code 113

Organic Liquids — Waste that is primarily organic and is highly fluid, with low inorganic solids content and low-to-moderate water content

201	Concentrated solvent-water solution
202	Halogenated (e.g., chlorinated) solvent
203	Non-halogenated solvent
204	Halogenated/non-halogenated solvent mixture
205	Oil-water emulsion or mixture
206	Waste oil
207	Concentrated aqueous solution of other ogranics
208	Concentrated phenolics
209	Organic paint, ink, lacquer, or vanish
210	Adhesives or epoxies
211	Paint thinner or petroleum distillates
212	Reactive or polymerizable organic liquids
219	Other organic liquids (Specify in Comments)
296	Ethylene glycol based antifreeze
297	Nonhazardous liquids containing greater than or equal to (≥) 50 and less than (<) 500 ppm PCBs
298	Nonhazardous liquids containing greater than or equal to (≥) 500 ppm PCBs
299 •	Nonhazardous photographic chemical waste (organic)

#### **Code** Waste Description

#### Solids

(These codes do not apply to pumpable waste.)

Inorganic Solids — Waste that is primarily inorganic and solid, with low organic content and low-to-moderate water content; not pumpable

	ntent; <b>not pumpable</b>
301	Soil contaminated with organics
	Soil contaminated with inorganics only
303	Ash, slag, or other residue from incineration of wastes
304	Other "dry" ash, slag, or thermal residue
305	"Dry" lime or metal hydroxide solids chemically "fixed"
306	"Dry" lime or metal hydroxide solids not "fixed"
307	Metal scale, filings, or scrap
308	Empty or crushed metal drums or containers
309	Batteries or battery parts, casings, cores
310	Spent solid filters or adsorbents
311	Asbestos solids and debris
312	Metal-cyanide salts/chemicals
313	Reactive cyanide salts/chemicals
314	Reactive sulfide salts/chemicals
315	Other reactive salts/chemicals
316	Other metal salts/chemicals
319	Other waste inorganic solids
	(Specify in Comments)
388	Empty or crushed glass containers
389	Nonhazardous sandblasting waste
390	Nonhazardous concrete/cement/construction debris
391	Nonhazardous dewatered wastewater
	treatment sludge
392	Nonhazardous dewatered air pollution control device sludge
393	Catalyst waste
394	Nonhazardous solids containing greater than or equal to (>) 50 ppm and less than (<) 500 ppm PCBs
395	Nonhazardous solids containing greater than or equal to (>) 500 ppm PCBs
396	Nonhazardous electrical equipment/devices containing greater than or equal to (>) 50 ppm and less than (<) 500 ppm PCBs.
397	Nonhazardous electrical equipment/devices containing greater than or equal to (≥) 500 ppm PCBs.
398	Nonhazardous soils containing greater than or equal to (≥) 50 ppm and less than (<) 500 ppm PCBs.
399	Nonhazardous soils containing greater than or equal to (≥) 500 ppm PCBs

#### Code Waste Description

Organic Solids — Waste that is primarily organic and solid, with low-to-moderate inorganic content and water content; not pumpable

401	Halogenated pesticide solid
402	Non-halogenated pesticide solid
403	Solids resins or polymerized organics
404	Spent carbon
405	Reactive organic solid
406	Empty fiber or plastic containers
407	Other halogenated organic solids
	(Specify in Comments)
409	Other non-halogenated organic solids
	(Specify in Comments)
488	Wood debris
489	Petroleum contaminated solids
490	Sand blasting waste
491	Dewatered biological treatment sludge
492	Dewatered sewage or other untreated
	biological sludge
493	Catalyst waste
494	Solids containing greater than or equal to (≥)
	50 ppm and less than (<) 500 ppm PCBs
495	Solids containing greater than or equal to (≥)
	500 ppm PCBs
496	Electrical equipment/devices containing greater
	than or equal to (≥) 50 ppm and less than
	(<) 500 ppm PCBs.
497	Electrical equipment/devices containing greater
	than or equal to ( $\geq$ ) 500 ppm PCBs.
498	Soil containing greater than or equal to (≥) 50
	ppm and less than (<) 500 ppm PCBs.
499	Soils containing greater than or equal to
	(≥) 500 ppm PCBs.
	• / 11

#### Sludges

(These codes only apply to pumpable waste.)

Inorganic Sludges — Waste that is primarily inorganic, with moderate-to-high water content and low organic content, and pumpable

501	Lime sludge without metals
502	Lime sludge with metals/metal hydroxide sludge
503	Wastewater treatment sludge with toxic organics
504	Other wastewater treatment sludge
505	Untreated plating sludge without cyanides
506	Untreated plating sludge with cyanides
507	Other sludge with cyanides
508	Sludge with reactive sulfides
509	Sludge with other reactives

## Appendit F-continued

Waste Description
Degreasing sludge with metal scale or filing
Air pollution control device sludge (e.g., th 🖄
wet scrubber sludge)
Sediment or lagoon dragout contaminates with
organics
Sediment or lagoon dragout contaminates: will
inorganics only
Drilling mud
Asbestos slurry or sludge
Chloride or other brine sludge
Other inorganic sludges (Specify in Comnection
Catalyst waste
Nonhazardous sludges containing greater the
or equal to (≥) 50 ppm and less than (<\ \^2\)
ppm PCBs
Nonhazardous sludges containing greater than
or equal to (≥) 500 ppm PCBs

Organic Sludges — Waste that is primarily organic with low-to-moderate inorganic solids content and water content, and pumpable

601	Still bottoms of halogenated (e.g., chloring)
	solvents or other organic liquids
602	Still bottoms on non-halogenated solvents of
	other organic liquids
603	Oily sludge
604	Organic paint or ink sludge
605	Reactive or polymerizable organics
606	Resins, tars, or tarry sludge
607	Biological treatment sludge
608	Sewage or other untreated biological sludge
609	Other organic studges (Specify in Comments)
695	Petroleum contaminated sludges other than we
	bottoms and oily sludges
696	Grease
697	Catalyst waste
698	Nonhazardous sludges containing greater the
	or equal to (>) 50 ppm and less than (<) Six
	ppm PCBs
699	Nonhazardous sludges containing greater than
	or equal to (>) 500 ppm PCBs

#### Gases

Inorganic Gases — Waste that is primarily inorganic math to low organic content and is a gas at atmospheric provides

701 Inorganic gases

#### Code Waste Description

Organic Gases — Waste that is primarily organic with lowco-moderate inorganic content and is a gas at atmospheric content and is a gas at atmospheric

301 Organic gases

#### Plant Trash

In order to be considered for one of the three plant refuse pesignations, a waste must pass two tests.

First, the waste must be a Class 2 waste. This means that a proper classification determination must be performed for each item which a facility is considering as one of the plant refuse designations. A waste is not a Class 2 solely because thas been designated as a plant refuse waste. Hazardous and Class 1 wastes are not eligible for designation as one of the plant refuses.

Second, the waste must meet the particular definition of the clant refuse term. For more information on these terms, clease refer to the terms listed in this table as well as the 'Definitions' section which follows this table.)

- Plant production refuse —
  any Class 2 paper, cardboard, linings, wrappings, paper packaging materials, food wastes, glass, aluminum foil, plastics, styrofoam and food packaging waste, that are produced as a result of plant production, manufacturing or laboratory operations please note that this definition does not include such things as metal parts, floor sweepings, and excess chemicals
- supplemental plant production refuse —
  any Class 2 waste from production, manufacturing, or laboratory operations as long as the total amount of the supplemental plant production refuse does not exceed twenty percent of the total plant production refuse volume or weight, whichever is less this could include, but is not limited to, such things as metal parts, floor sweepings, and off-specification materials
- Plant office refuse —
  Class 2 paper, cardboard, linings, wrappings,
  paper or wood packaging materials, food
  wastes, glass, aluminum foil, plastics, styrofoam
  and food packaging waste, that come from
  general office, cafeteria, or food service
  operations this could include such things as
  soda cans, empty shipping cartons, and binders

#### **DEFINITIONS**

The following are definitions of terms utilized in form codes:

Acidic - A material having a pH less than 7.0.

Alkaline - A material having a pH greater than 7.0.

**Aqueous** – A water solution containing organic and/or inorganic constituents dissolved in solution.

Caustic - A material which is corrosive or irritating to living tissue and has a pH greater than 7.

**Inorganic** – Chemicals that are not organic (i.e., water, carbon dioxide, carbon disulfide, iron, zinc, steel). Generally, if a waste is composed of more than 50% inorganic materials, it is considered an inorganic waste.

Organic - Chemicals composed primarily of carbon and hydrogen and their derivatives. (ie. methylene chloride, benzene, petroleum products) In general, if a waste is composed of 50% or more organic materials, it is considered an organic waste.

Plant Office Refuse – Paper, cardboard, linings, wrappings, paper or wood packaging materials, food wastes, glass, aluminum foil, plastics, styrofoam and food packaging, that come from general office, cafeteria, or food service operations, and that are classified as Class 2 wastes (form code 903). Please note that hazardous waste and Class 1 waste can not be designated as "plant office refuse".

Examples of "plant office refuse" include Class 2 soda cans, lunch sacks, food scraps, envelopes, plastic binders, and empty boxes.

As another example, used typing paper from the secretarial area could not be considered a "plant production refuse" because it was not generated in a plant production, manufacturing, or laboratory operation. However, this typing paper could be designated as "plant office refuse" as long as it was a Class 2 waste. (Please note that typing paper would normally be considered a Class 2 waste unless it were contaminated with something which would cause it to be considered a hazardous or Class 1 waste. For example, if typing paper were used to clean up a spill of a F003 waste, it would be considered a hazardous waste.)

**Plant Production Refuse** – Paper, cardboard, linings, wrappings, paper packaging materials, food wastes, glass, alumi-

num foil, plastics, styrofoam and food packaging, that are produced as a result of plant production, manufacturing or laboratory operations and that are classified as Class 2 waste (form code 901). Plant production refuse shall not include oils, lubricants of any type, oil filters, contaminated soils, sludges, or wastewaters. Please note that hazardous waste and Class 1 waste can not be designated as "plant production refuse".

Examples of "plant production refuse" include Class 2 styrofoam acid shipping boxes, chemical container liners, shrink wrap, and broken glassware.

As another example, a Class 2 off-specification production chemical could not be considered a "plant production refuse" because it does not meet the definition of a "plant production refuse". In other words, because it is not paper, cardboard, linings, wrappings, paper packaging materials, food wastes, glass, aluminum foil, plastics, styrofoam or food packaging waste, it is not eligible for this designation. However, the Class 2 off-specification production chemical might be considered a "supplemental plant production refuse" as long as the weight/volume limits established for "supplemental plant production refuse" were not exceeded. (For more information on "supplemental plant production refuse and weight/volume limits, please see "Supplemental Plant Production Refuse" in these definitions.

**Reactive** – A material is reactive if it is capable of detonation or explosive decomposition:

- 1. at standard temperature and pressure, or
- 2. if subjected to a strong ignition source, or
- 3. heated under confinement.

A material is also considered reactive if, when mixed with water it is:

- 1. potentially explosive, or
- 2. reacts violently, or
- generates toxic gases or vapors (i.e. hydrogencyanide or hydrogensulfide).

A material is also considered reactive if it is:

- normally unstable and readily undergoes violent changes, or
- 2. a forbidden explosive (see 49 CFR §173.53), or
- 3. a Class B explosive (see 49 CFR §173.88).

Solvent - 4 izauc used to dissolve another material.

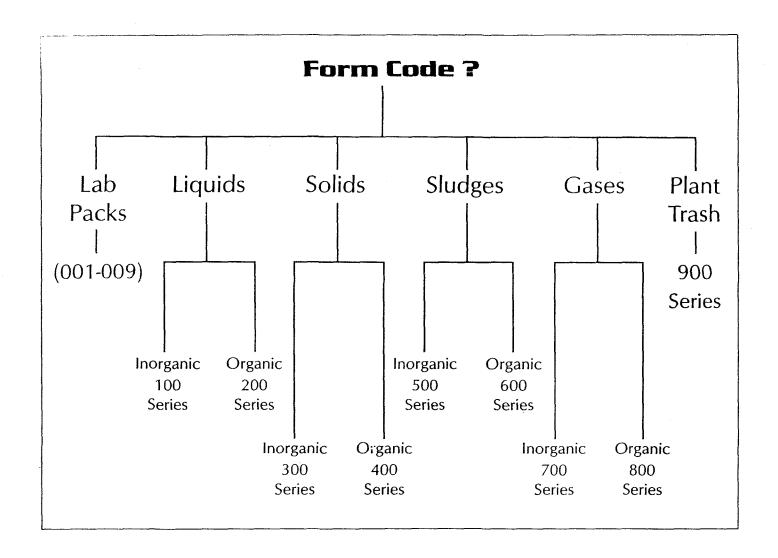
Supplemental Production Refuse - Any Class 2 Waste from secuction, manufacturing, or laboratory operations and designated as "supplemental plant production refuse does not exceed seem percent of the total plant production refuse volume an weight, whichever is less.

Individual water which have been designated "supplemental plant productor refuse" may be redesignated by the generator at a ser time as a separate waste in order to maintain the supplemental plant production refuse" at a level below 20% or the "plant production refuse" amount. For any waste stream so redesignated, the generator must provide the intermittation information required pursuant to 30 TAC Chance 335.

Please note that hazardous waste and Class 1 waste can not be designated as "supplemental plant production refuse".

Examples of "supplemental plant production refuse" include Class 2 steel shavings, empty metal containers, aerosol cans, old chemicals, safety equipment, and machine parts.

Please note that when a site notifies the Commission that it generates "supplemental plant production refuse", it must include a list of those wastes which are expected to be included in the "supplemental plant production refuse" designation. If that list increases, the generator must notify the Commission of the additions to that list; otherwise, the Commission will not view the additions as "supplemental plant production refuse".



### **Sludges**

#### Inorganic - 500 series

(Waste that is primarily inorganic, with moderate-to-high water content, and low organic content, and **pumpable**.)

#### Examples:

- 1. Wastewater treatment sludge containing phenolics **503**
- 2. Zinc plating wastewater sludge containing cyanide **506**
- 3. Sludge from pollution removal scrubber 511
- 4. Sediment pond dragout contaminated with lead 513
- 5. Water based drilling mud with brine 514
- 6. Waste metal catalyst with 0.89% organics **597**

#### Organic - 600 series

(Waste that is primarily organic, with moderateto-high water content, and low inorganic content, and pumpable.)

#### Examples:

- 1. Still bottoms from naptha recovery 602
- 2. Ink and paint sludge from printing bill-boards **604**
- 3. Bioremediation sludge from oil spill cleanup **607**
- 4. Motor repair facility sludge with grease 603
- 5. Refinery wastewater sludge with petroleum compounds **695**
- 6. Waste lubricating grease 696

#### Lab Packs - 001-009 series

#### Examples:

- 1. Lab pack containing debris 002
- 2. Lab pack containing old unused or partially used chemicals **001**

#### Plant Trash - 900 series

#### **Examples:**

- 1. Office debris (i.e., paper, plastic, alluminum cans and fax paper) **903**
- 2. Scrap plastic from molds of toys and souvenirs **902**
- 3. Packing debris from unpacking of raw materials **901**



Instructions for Completing the Notification for Hazardous or Industrial Waste Management Form (TNRCC-0002)

#### Who must complete these forms?

- recyclers of industrial or hazardous waste
- commercial transporters of industrial Class 1 waste or hazardous waste
- anyone who disposes of industrial waste or hazardous waste at their own facility
- anyone who generates more than 220 pounds of hazardous waste in a calendar month
- anyone who generates 2.2 pounds or more of acutely hazardous waste in a calendar month
- · anyone who generates more than 220 pounds

#### What is in this package?

- 1. Line-by-line instructions
- 2. Codes necessary to complete the form

Are you interested in creating your Notice of Registration electronically?

Please contact the Data Management and Analysis Team-1 at 512/239-6413.

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Page 1 of 17

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#### Instructions for Completing the Notification for Hazardous or Industrial Waste Management Form (TNRCC-0002)

#### Who must complete these forms?

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#### What is in this package?

- 1. Line-by-line instructions
- 2. Codes necessary to complete the form

Are you interested in creating your Notice of Registration electronically?

Please contact the Data Management and Analysis Team-1 at 512/239-6413.

## Instructions for Completing TNRCC-0002

#### **READ THIS CAREFULLY:**

This form is designed to be used for Initial Notifications as well as Subsequent Notifications to add Waste Streams, On-site Waste Management Units, or both.

#### For an Initial Notification:

- 1. Complete this form, the Core Data Form (TNRCC-10400), and EPA form 8700-12.
- 2. Under "Notification Type," check Initial.
- 3. Make enough copies of Section E, "Waste Stream Notification," to identify each *waste* generated at your site.
- 4. Make enough copies of Section F, "Hazardous or Industrial Waste Management Unit Information," to identify each **waste management unit** at your site.
- 5. Your site will be assigned a Solid Waste Registration Number and an EPA Identification Number, if needed.
- 6. The Solid Waste Registration Number and EPA ID Number are site specific. If the company moves to a new site location, an Initial Notification must be submitted and new registration numbers assigned for the new site.

#### For a Subsequent Notification to add one or more Waste Streams:

- 1. Complete Items 1-5 in Part II.
- 2. Under "Notification Type," check Update.
- 3. Go to Section E, "Waste Stream Notification." Complete only this section.
- 4. Make enough copies of Section E to identify each waste stream that you are adding to your existing Notice of Registration.

#### For a Subsequent Notification to add one or more On-site Management Units:

- 1. Complete Items 1-5 in Part III.
- 2. Under "Notification Type," check Update.
- Go to Section F, "Hazardous or Industrial Waste Management Unit Information." Complete only this section.
- 4. Make enough copies of Section F to identify each management unit you are adding to your existing Notice of Registration.

#### To correct or update information on the Core Data Form (TNRCC-10400):

Complete a new Core Data Form. (According to its instructions, you may complete **only** the items that have changed, if you wish.)

To obtain a Core Data Form, call TNRCC Publications at 512/239-0028 or visit our Web site, www.tnrcc.state.tx.us, go to "Forms," and look for number 10400.

#### Part I. Notification Type and Registration Numbers

- 1. Notification Type: Check the box that applies to the type of notification.
  - "Initial" means that this is the first registration for this company or facility at this site.
  - "Update" means that this site already has a Notice of Registration on file with us and you are adding one or more waste streams or on-site waste management units to it.
- 2. Solid Waste Registration Number: Enter the 5-digit number assigned to this site. For an Initial Notification, leave this item blank.

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- 3. **EPA Identification Number:** Enter the 12-digit number assigned to this site by the US Environmental Protection Agency.
  - For an Initial Notification, leave this item blank.
  - If the site does not generate or handle hazardous waste, an EPA Identification Number is not required. Leave this item blank.
  - If the company is a **transporter** located in another state and shipping waste into Texas, enter the EPA Identification Number assigned to your facility in your home state.
- 4. Customer Reference Number: If the customer has already been assigned this number by the TNRCC Central Registry Program, enter the number here. If you do not have a customer reference number, leave this item blank and submit a completed Core Data Form (TNRCC-10400) with this notification.
- 5. Regulated Entity Number: If this site (or company, in the case of a transporter) has already been assigned this number by the TNRCC Central Registry Program, enter the number here. If the site does not have a regulated entity reference number, leave this item blank and submit a completed Core Data Form (TNRCC-10400) with this notification.

#### **Section A. Company Information**

- 1. Company Name: Legal company name as registered with the Secretary of State.
- 2. Site Name: Can be either same as Question 1, or Doing Business As (DBA).
- **3. Registration Type:** This question pertains to your waste activities. Check all the categories that apply.
- **4. Name of Contact:** Individual who represents your facility for waste management issues. Please include telephone number, e-mail address, and fax number, if available.
- 5. Waste Handler Status: This applies to your facility—not your disposal company. Check all the categories that apply.

#### **Section B. Generator Information**

If your facility **does not** fit the definition of a "Generator," check the box at the top of this section and skip to Section C.

- Generator Type: Generators are grouped into one of three categories based on their business activities. Choose the category that best describes your business type. Check "Railroad Commission" if the business activity that generates this waste is regulated by the Texas Railroad Commission.
- Hazardous Waste Generation Status: This question refers to the amount of hazardous
  waste generated at your site in a calendar month. Check the box that applies to your
  hazardous waste generation.

#### Section C. Receiver Information

The questions in this section refer to facilities that accept or manage industrial waste from off-site sources. This practice might require a permit according to Title 30 Texas

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If your facility **does not** fit the definition of a "Receiver," check the box at the top of this section and skip to Section D.

- Facility Category: Check the box that best describes the way in which your facility receives industrial waste. (See Appendix A, "Definitions," on page 10 for an explanation of the terms "commercial," "captive," and "captured.")
- Class of Waste Received: This applies to the waste that your facility receives from offsite, not waste generated on-site. Check all types of waste that apply.
- 3. Do you receive hazardous waste for treatment, storage or disposal?: Check "Yes" or "No."
- 4. Do you receive manifested Class 1 waste for treatment, storage or disposal?: Check "Yes" or "No."
- 5. If you receive waste from off-site and recycle it at your site, answer the following: Please give a descriptive answer for each question.
  - a. Describe the material(s) to be recycled.
  - b. Describe any storage of the material(s) prior to recycling. (If no storage occurs, write "None.")
  - c. Describe how the material(s) will be recycled.
  - d. Describe the purpose or function of the material(s) in the recycling activity.

#### Section D. Transporter Information

If your facility **does not** fit the definition of a "Transporter," check the box at the top of this section and skip to "Certification of Company Information" at the end of this section.

To transport *hazardous* waste you must have an EPA identification number. See Form 8700-12, Notification of Regulated Activity, which is attached to the end of this form.

- 1. Carrier Classification: Answer "Yes" or "No" to each question.
  - a. Do you transport for hire?
  - b. Do you transport your own waste?
  - c. Is this site a transfer facility?
- Type of waste transported: This pertains to hazardous and/or industrial waste only.
   Please check all the categories that apply. To register as a transporter of municipal sludge, medical waste, or used tires, call Data Management and Analysis Team-2 (512/239-6832).

**Certification of Company Information:** Preparer, print and sign your name in the spaces provided. In doing so, you are certifying that the information on this form is complete and accurate. Enter the date that you signed the form and a telephone number where we can reach you if we have any questions about the information entered on this form.

#### Part II. Notification Type and Registration Numbers

- 1. **Notification Type:** Check the box that applies to the type of notification.
  - "Initial" means that this is the first registration for this company or facility at this site.

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- "Update" means that this site already has a Notice of Registration on file with us and you are adding one or more waste streams or on-site waste management units to it.
- 2. Solid Waste Registration Number: Enter the 5-digit number assigned to this site. For an Initial Notification, leave this item blank.
- **3. EPA Identification Number:** Enter the 12-digit number assigned to this site by the US Environmental Protection Agency.
  - · For an Initial Notification, leave this item blank.
  - If the site does not generate or handle hazardous waste, an EPA Identification Number is not required. Leave this item blank.
  - If the company is a **transporter** located in another state and shipping waste into Texas, enter the EPA Identification Number assigned to your facility in your home state.
- 4. Customer Reference Number: If the customer has already been assigned this number by the TNRCC Central Registry Program, enter the number here. If you do not have a customer reference number, leave this item blank and submit a completed Core Data Form (TNRCC-10400) with this notification.
- 5. Regulated Entity Number: If this site has already been assigned this number by the TNRCC Central Registry Program, enter the number here. If the site does not have a regulated entity reference number, leave this item blank and submit a completed Core Data Form (TNRCC-10400) with this notification.
- 6. Company Name: Legal company name as registered with the Secretary of State.
- 7. Site Name: Can be either same as Question 1, or Doing Business As (DBA).

#### Section E. Waste Stream Notification

For information on identifying waste streams, read *Guidelines for the Classification & Coding of Industrial & Hazardous Waste,* TNRCC publication RG-022. To find this publication on our Web site (**www.tnrcc.state.tx.us**), go to "Publications" and look for number 022. You may also order a copy from TNRCC Publications (phone 512/239-0028; fax 512/239-4488).

1. Texas Waste Code: The Texas Waste Code consists of 8 digits—for example:

**Sequence Number:** The waste sequence number is 4 digits and uniquely identifies this waste stream on your NOR. These digits range from 0001 to 9999. No letters are allowed.

- You assign these digits. If this is the first waste stream, we recommend that you use 0001 for the first sequence number, followed by 0002, 0003, 0004, and so on. However, you may use any 4-digit combination you prefer as long as that number is not already assigned to another waste stream at your facility.
- Never assign the same sequence number to two waste streams.

**Form Code:** From Appendix B (page 11), select the form code that best describes this waste stream. The form code is always 3 digits.

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Class Code: Circle the appropriate waste classification—H, 1, 2, or 3. If you need more information about class codes, read *Guidelines for the Classification & Coding of Industrial & Hazardous Waste*, TNRCC publication RG-022. To order, see the box above this item.

All **Class 3** notifications **must** be accompanied by classification documentation and rationale.

**Texas Waste Code:** Enter the 8-digit waste code developed from the sequence number, form code, and class code. If the class code is "H," enter it as a capital letter.

- 2. Waste Description and Generating Process: This description should include:
  - · what the waste is
  - · how the waste was generated
  - · names of chemicals in the waste

**Example:** Spent solvent from degreasing operation in tool production. Steel blocks are machined to a specific shape then rinsed with the solvent prior to painting. Waste is a mixture of mineral spirits and metal shavings.

- 3. Date of Generation: Provide the date of first generation in month, day, year format.
- **4. Origin Code:** From the list provided on the form, write the corresponding number in the box. The primary origin code should best describe the process or activity that generates this waste stream.
- 5. New Chemical Substance: This is defined under the federal Toxic Substances Control Act, Title 15 United States Code, Section 2606(9). If you check "Yes" and the waste is Class 2 or Class 3, attach copies of the classification information, documentation, and rationale.
- 6. Waste Management Location: Check "Off-site" or "On-site" if the waste is managed in only one of these locations. Check both of these boxes if some waste is managed on-site and some waste is managed off-site. If the waste is managed in an on-site waste management unit, provide the 3-digit number of the unit where the waste is treated, stored, or disposed. If more than four management units are used for this waste stream, list the unit sequence numbers on an additional page.

For an Initial Notification, leave the 3-digit on-site waste management unit number blank. You will be asked to cross-reference the waste steam and management unit in Section G, "Waste Management Unit Information."

- 7. Is this waste recycled?: Check the box that best describes the recycling method of this waste stream.
  - Questions 8–12 pertain to hazardous waste only.
  - If this waste is nonhazardous, skip Questions 8–12 and go directly to "Certification of Waste Stream Information" on page 7.
- 8. EPA Hazardous Waste Numbers: If this waste stream is nonhazardous, leave these spaces blank. If the waste is hazardous, these numbers are always four characters long and will begin with a D, F, P, K, or U. (Sometimes these numbers are referred to as EPA Hazardous Waste Codes.) If you have more than 24 waste numbers, please continue on a

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separate page. See Title 40 Code of Federal Regulations (40 CFR) Part 261 for the list of EPA Hazardous Waste Numbers.

- **9a. SIC Code:** Enter the Standard Industrial Classification Code that best describes the product, service, or manufacturing process associated with the generation of this waste.
- **9b. NAICS Code:** Enter the North American Industry Classification System Code that best describes the product, service, or manufacturing process associated with the generation of this waste.

A good source for both SIC and NAICS codes is your local Chamber of Commerce. You can also find these codes on the Web at: www.hc.cc.tx.us/library

- **10. Source Code:** Enter the source code that best describes the production, service, or waste management process associated with the generation of this waste. (See Appendix C, "Source Codes," on page 15.)
- 11. System Type Code: The system type code describes how the waste is managed. (See Appendix D, "System Type Codes," on page 16.)
- 12. Mixed Radioactive Waste?: Check "Yes" if this hazardous waste is mixed with nuclear source material, special nuclear material, or nuclear by-product material. If not, check "No."

**Certification of Waste Stream Information:** Preparer, print and sign your name in the spaces provided. In doing so, you are certifying that the information on this form is complete and accurate. Enter the date that you signed the form and a telephone number where we can reach you if we have any questions about the information entered on this form.

#### Part III. Notification Type and Registration Numbers

- 1. Notification Type: Check the box that applies to the type of notification.
  - "Initial" means that this is the first registration for this company or facility at this site.
  - "Update" means that this site already has a Notice of Registration on file with us and you are adding one or more waste streams or on-site waste management units to it.
- 2. Solid Waste Registration Number: Enter the 5-digit number assigned to this site. For an Initial Notification, leave this item blank.
- EPA Identification Number: Enter the 12-digit number assigned to this site by the US Environmental Protection Agency.
  - For an Initial Notification, leave this item blank.
  - If the site does not generate or handle hazardous waste, an EPA Identification Number is not required. Leave this item blank.
  - If the company is a **transporter** located in another state and shipping waste into Texas, enter the EPA Identification Number assigned to your facility in your home state.
- 4. Customer Reference Number: If the customer has already been assigned this number by the TNRCC Central Registry Program, enter the number here. If you do not have a customer reference number, leave this item blank and submit a completed Core Data Form (TNRCC-10400) with this notification.

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- 5. Regulated Entity Number: If this site has already been assigned this number by the TNRCC Central Registry Program, enter the number here. If the site does not have a regulated entity reference number, leave this item blank and submit a completed Core Data Form (TNRCC-10400) with this notification.
- 6. Company Name: Legal company name as registered with the Secretary of State.
- 7. Site Name: Can be either same as Item 1, or Doing Business As (DBA).

#### Section F. Hazardous or Industrial Waste Management Information

- Unit Sequence Number: The unit sequence number consists of 3 digits that uniquely identify this waste management unit on your NOR. These digits range from 001 to 999. No letters are allowed.
  - You assign these digits. If this is the first waste management unit, we recommend that you use 001 for the first sequence number, followed by 002, 003, 004, and so on. However, you may use any 3-digit combination you prefer as long as that number is not already assigned to another waste management unit at your facility.
  - Do not use any letters (A, B, etc.) in your sequence numbers.
  - Never assign the same sequence number to two different waste management units. Even if a waste management unit becomes inactive, do not assign its sequence number to another unit.
- 2. Unit Type Code: Select the correct unit type from list provided in Appendix E, "Unit Type Codes," on page 17, and provide the corresponding number in these boxes.
- 3. Capacity: Please provide the amount of capacity the unit will hold. Use the abbreviation for the measurement unit as listed below:

	Units o	of Measure	
For:	Use:	For:	Use:
gallons	(G)	tons .	(T)
liters	(L)	cubic feet	(F)
pounds	(P)	cubic yards	(Y)
surface acres	(A)	kilograms	(K)
unit (each)	(U)	·	` ,

**4. Unit Description:** Include any information that helps identify this unit—for example, the type of unit, its purpose, or its physical location.

Example: Storage tank to south of yellow building

- 5. Is this unit permitted?: Check "Yes" or "No."
- **5a. IHW Permit Number:** If you answered "Yes" to Item 5 and the unit has a RCRA Hazardous Waste Permit, enter the permit number.
- **5b. UIC Permit Number:** If you answered "Yes" to Item 5 and the unit has an underground injection control (UIC) permit, enter the permit number.

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- **6. Unit Registration Status:** Is unit active, inactive, not yet built, or under construction? Check the category that applies.
- 7. Unit Regulatory Status: Select the correct regulatory status by placing a check in the appropriate box next to the description. Refer to 40 CFR Section 260.10 and 30 TAC Sections 335.2 and 335.24 for an explanation of terms.
- 8. System Type Code: The system type code describes how the waste is managed in this unit. (See Appendix D, "System Type Codes," on page 16.)

If this unit **does not** manage waste from an off-site source, skip Question 9 and continue to Question 10.

- Type of off-site waste managed in unit: If your facility receives waste from off-site, enter
  the class and type of off-site waste being managed in this unit by placing a check in one or
  more of the boxes.
- 10. List the waste streams generated on-site and managed in this unit: Identify your wastes by the 8-digit Texas Waste Code in the boxes provided.

Certification of Hazardous or Industrial Waste Management Unit Information: Preparer, print and sign your name in the spaces provided. In doing so, you are certifying that the information on this form is complete and accurate. Enter the date that you signed the form and a telephone number where we can reach you if we have any questions about the information entered on this form.

#### Mail the completed forms to:

Texas Natural Resource Conservation Commission Registration, Review, and Reporting Division Registration and Reporting Section MC 129 PO Box 13087

#### **Notification of Regulated Waste Activity (EPA Form 8700-12)**

To find instructions for this portion of the forms package, go to the TNRCC Web site (www.tnrcc.state.tx.us) and look for the category "Forms" at the top of the home page. When you are on the "Forms" page, enter form number 8700-12.

Austin TX 78711-3087

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#### **Appendix A. Definitions**

These definitions have been provided to you for informational purposes. They are not the "legal" definitions. Legal definitions may be found in 30 TAC Chapter 335 and 40 CFR Part 260-299.

**captive:** A facility that accepts waste from only related (within the same corporation) off-site generators.

**captured:** Receiver that is located within the property boundaries of the generators it receives waste from.

**CFR:** Code of Federal Regulations

Class 1: Any industrial waste that may pose a danger or potential danger to human health or the environment. Class 1 waste is defined in 30 TAC 335.505 and .508.

Class 2: Any industrial waste that cannot be described as hazardous, Class 1 or Class 3. It is defined in 30 TAC 335.506.

Class 3: Nonliquid waste that does not react with other materials and does not dissolve (e.g., go into solution). May include brick, glass, and various types of plastic or rubber. Defined in 30 TAC 335.507.

**commercial:** Any facility that accepts wastes for a charge but is not a captured or captive facility.

**disposal:** The discharge, deposit, injection, dumping, spilling, leaking, or placing of any waste into or on any land or water.

disposal facility: A facility where waste is placed for final disposition.

hazardous waste: These are identified by the EPA in 40 Code of Federal Regulations (CFR) Part 261.

**permitted facility:** A facility which has received written TNRCC authorization to construct and operate certain specified waste management activities or units.

recycled: A material is "recycled" if it is used, reused, or reclaimed.

recycler: Anyone who is using, reusing, or reclaiming a "recycled" material.

**sludge**: Any waste generated from a wastewater treatment plant (except for treated effluent), water-supply treatment plant, or air pollution control device.

**storage:** The holding of waste for a temporary period.

**TAC:** Texas Administrative Code

TSDF: treatment, storage, and disposal facility.

**treatment:** To apply to contaminated media a process that significantly reduces the toxicity, volume, or mobility of contaminants.

**used oil:** Any oil that has been refined from crude oil, used, and, as a result of such use, is contaminated.

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#### **Appendix B. Form Codes**

#### LAB PACKS—Lab packs of mixed wastes, chemicals, lab wastes

Code Waste Description

001 Lab pack of old chemicals only

002 Lab pack of debris only

003 Mixed lab packs

004 Lab pack containing acute hazardous wastes

009 Other lab pack (Specify in Comments)

#### **LIQUIDS**—Inorganic and organic liquids

Inorganic Liquids: Waste that is primarily inorganic and highly fluid (e.g., aqueous), with low suspended inorganic solids and low organic content

Code	Waste Description
101	Aqueous waste with low solvents
102	Aqueous waste with low other toxic organic
103	Spent acid with metals
104	Spent acid without metals
105	Acidic aqueous waste
106	Caustic solution with metals but no cyanides
107	Caustic solution with metals and cyanides
108	Caustic solution with cyanides but no metals
109	Spent caustic
110	Caustic aqueous waste
111	Aqueous waste with reactive sulfides
112	Aqueous waste with other reactive (e.g., explosives)
113	Other aqueous waste with high dissolved solids
114	Other aqueous waste with low dissolved solids
115	Scrubber water
116	Leachate
117	Waste liquid mercury
119	Other inorganic liquids (Specify in Comments)
198	Nonhazardous photographic chemical wastes (inorganic)
199	Brine solution that could also bear the form code 113

Organic Liquids: Waste that is primarily organic and is highly fluid, with low inorganic solids content and low-to-moderate water content

201	Concentrated solvent-water solution
202	Halogenated (e.g., chlorinated) solvent
203	Nonhalogenated solvent
204	Halogenated/nonhalogenated solvent mixture
205	Oil-water emulsion or mixture
206	Waste oil
207	Concentrated aqueous solution of other organic
208	Concentrated phenolics
209	Organic paint, ink, lacquer, or varnish
210	Adhesives or epoxies
211	Paint thinner or petroleum distillates
212	Reactive or polymerizable organic liquids
219	Other organic liquids (specify in Comments)
296	Ethylene glycol based antifreeze
297	Nonhazardous liquids containing greater than or equal to (>) 50 and less than (<) 500 ppm PCBs
298	Nonhazardous liquids containing greater than or equal to (≥) 500 ppm PCBs
299	Nonhazardous photographic chemical waste (organic)

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Waste Description

Code

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#### **SOLIDS**—Inorganic or organic solids

Inorganic Solids: Waste that is primarily inorganic and solid, with low organic content

and low-to-moderate water content; not pumpable

Code	Mosto Description
301	Waste Description Soil contaminated with organic
302	Soil contaminated with organics only
303	Ash, slag, or other residue from incineration of wastes
303	Other "dry" ash, slag, or thermal residue
305	"Dry" lime or metal hydroxide solids, chemically "fixed"
	"Dry" lime or metal hydroxide solids, not "fixed"
306	Metal scale, filings, or scrap
307	
308	Empty or crushed metal drums or containers
309	Batteries or battery parts, casings, cores
310	Spent solid filters or adsorbents
311	Asbestos solids and debris
312	Metal-cyanide salts/chemicals
313	Reactive cyanide salts/chemicals
314	Reactive sulfide salts/chemicals
315	Other reactive salts/chemicals
316	Other metal salts/chemicals
319	Other waste inorganic solids (specify in Comments)
388	Empty or crushed glass containers
389	Nonhazardous sandblasting waste
390	Nonhazardous concrete/cement/construction debris
391	Nonhazardous dewatered wastewater treatment sludge
392	Nonhazardous dewatered air pollution control device sludge
393	Catalyst waste
394	Nonhazardous solids containing greater than or equal to (≥) 50 ppm and less than (<) 500 ppm PCBs
395	Nonhazardous solids containing greater than or equal to (≥) 500 ppm PCBs
396	Nonhazardous electrical equipment/devices containing greater than or equal to (≥) 50 ppm and less than (<) 500 ppm PCBs
397	Nonhazardous electric equipment/devices containing greater than or equal to (≥) 500 ppm PCBs
398	Nonhazardous soils containing greater than or equal to (≥) 50 ppm or less than (<) 500 ppm PCBs
399	Nonhazardous soils containing greater than or equal to (≥) 500 ppm PCBs

### Organic Solid: Waste that is primarily organic and solid, with low-to-moderate inorganic content and water content; not pumpable

Code 401 402	Waste Description Halogenated pesticide solid Nonhalogenated pesticide solid
403	Solids resins or polymerized organic
404	Spent carbon
405	Reactive organic solid
406	Empty fiber or plastic containers
407	Other halogenated organic solids (specify in Comments)
409	Other nonhalogenated organic solids (specify in Comments)
488	Wood debris
489	Petroleum contaminated solids
490	Sandblasting waste
491	Dewatered biological treatment sludge
492	Dewatered sewage or other untreated biological sludge
493	Catalyst waste
494	Solids containing greater than or equal to (≥) 50 ppm and less than (<) 500 ppm PCBs
495	Solids containing greater than or equal to (≥) 500 ppm PCBs
496	Electrical equipment/devices containing greater than or equal to (≥) 50 ppm and less than (<) 500 ppm PCBs

#### Organic Solid (continued)

Code Waste Description
497 Electrical equipment/devices containing greater than or equal to (≥) 500 ppm PCBs
498 Soils containing greater than or equal to (≥) 50 ppm and less than (<) 500 ppm PCBs

499 Soils containing greater than or equal to (≥) 500 ppm PCBs

#### **SLUDGE**—Inorganic or organic sludge

Inorganic Sludge Waste that is primarily inorganic, with moderate-to-high water content and low organic content and pumpable

Code Waste Description 501 Lime sludge without metals 502 Lime sludge with metals/metal hydroxide sludge 503 Wastewater treatment sludge with toxic organic 504 Other wastewater treatment sludge 505 Untreated plating sludge without cyanides 506 Untreated plating sludge with cyanides 507 Other sludge with cyanides 508 Sludge with reactive sulfides 509 Sludge with other reactive 510 Degreasing sludge with metal scale or filings 511 Air pollution control device sludge (e.g., fly ash, wet scrubber sludge) 512 Sediment or lagoon dragout contaminated with organic 513 Sediment or lagoon dragout contaminated with inorganics only 514 Drilling mud 515 Asbestos slurry or sludge 516 Chloride or other brine sludge 519 Other inorganic sludge (specify in Comments) 597 Catalyst waste 598 Nonhazardous sludge containing greater than or equal to (≥) 50 ppm and less than (<) 500 ppm **PCBs** 599 Nonhazardous sludge containing greater than or equal to (≥) 500 ppm PCBs

Organic Sludge: Waste that is primarily organic with low-to-moderate inorganic solids content and water content, and pumpable

601 Still bottoms of halogenated (e.g., chlorinated) solvents or other organic liquids 602 Still bottoms of nonhalogenated solvents or other organic liquids 603 Oily sludge 604 Organic paint or ink sludge 605 Reactive or polymerizable organic 606 Resins, tars, or tarry sludge Biological treatment sludge 607 Sewage or other untreated biological sludge 608 609 Other organic sludge (specify in Comments) 695 Petroleum-contaminated sludge other than still bottoms and oily sludge 696 Grease 697 Catalyst waste 698 Nonhazardous sludge containing greater than or equal to (≥) 50 ppm and less than (<) 500 ppm Nonhazardous sludge containing greater than or equal to (≥) 500 ppm PCBs 699

#### GAS—Inorganic or organic gases

Waste Description

Inorganic Gas: Waste that is primarily inorganic with a low organic content

and is a gas at atmospheric pressure

Code Waste Description 701 Inorganic gas

Code

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Organic Gas: Waste that is primarily organic with low-to-moderate inorganic content

and is a gas at atmospheric pressure

Code Waste Description

801 Organic gas

#### **PLANT REFUSE**

**Note:** In order to be considered for one of these two plant refuse designations, a waste must pass **both** of these two tests:

- 1. The waste must be a Class 2 waste. This means that a proper classification determination must be performed for each item that a facility is considering as one of the plant refuse designations. A waste cannot "become" Class 2 solely because it has been designated as a plant refuse waste. Hazardous and Class 1 wastes are not eligible for designation as one of the plant refuses.
- 2. The waste must meet the definition of the selected plant refuse term.

Code Waste Description

Supplemental plant production refuse—Class 2 waste from production, manufacturing, or laboratory operations. The total amount of the supplemental plant production refuse must not exceed 20 percent of the annual average of the total plant refuse (form code 999) volume or weight, whichever is less.

999 Plant trash—Class 2 waste that originates in the facility offices or plant production area, is composed of paper, cardboard, linings, wrappings, paper and/or wooden packaging materials, food wastes, cafeteria waste, glass, aluminum foil, aluminum cans, aluminum scrap, stainless steel, steel, iron scrap, plastics, Styrofoam, rope, twine, uncontaminated rubber, uncontaminated wooden materials, equipment belts, wiring, uncontaminated cloth, metal bindings, empty containers with a holding capacity of five gallons or less, uncontaminated floor sweepings, and/or food packaging, and is produced as a result of plant production, manufacturing, laboratory, general office, cafeteria, or food services operations. Includes personal cosmetics generated by facility personnel, but not cosmetics generated as a result of manufacturing or plant production operations.

#### **Appendix C. Source Codes**

#### **Code Source Description**

A01	Stripping
A02	Acid cleaning

A03 Caustic (alkali) cleaning

A04 Flush rinsing

A05 Metals recovery—type unknown

A07 Vapor degreasing

A08 Physical scraping and removal A09 Clean out process equipment A19 Other cleaning and degreasing

#### SURFACE PREPARATION AND FINISHING

A21 Painting
A22 Electroplating
A23 Electroless plating
A24 Phosphating
A25 Heat treating
A26 Pickling
A27 Etching

A29 Other surface coating/preparation (specify in

Comments)

#### PROCESSES OTHER THAN SURFACE PREPARATION

A31 Product rinsing Product filtering A32 A33 Product distillation Product solvent extraction A34 A35 By-product processing A37 Spent process liquids removal A38 Tank sludge removal Slag removal A39 Metal forming A40 A41 **Plastics forming** A49 Other processes other than surface preparation (specify in Comments)

#### PRODUCTION- OR SERVICE-DERIVED ONE-TIME

#### AND INTERMITTENT PROCESSES

A51 Leak collection

A53 Cleanup of spill residues

A54 Oil changes

A55 Filter/battery replacement

A56 Discontinue use of process equipment

A57 Discarding off-spec material

A58 Discarding out-of-date products or chemicals
A59 Other production-derived one-time & intermittent

processes

A60 Sludge removal

#### **Code Source Description**

#### **REMEDIATION-DERIVED WASTE**

A61 Superfund Remedial Action
A62 Superfund Emergency Response
A63 RCRA Corrective Action at solid waste
management unit
A64 RCRA closure of hazardous waste management

unit
A65 Underground storage tank cleanup

A69 Other remediation

## POLLUTION CONTROL OR WASTE TREATMENT PROCESSES

A71 Filtering/screening
A72 Metals recovery
A73 Solvents recovery
A74 Incineration/thermal treatment
A75 Wastewater treatment
A76 Sludge dewatering

A77 Stabilization
A78 Air pollution control devices

A79 Leachate collection

A89 Other pollution control or waste treatment

#### **OTHER PROCESSES**

A91 Clothing and personal protective equipment
A92 Routine cleanup wastes (e.g., floor sweepings)
A93 Closure of management unit(s) or equipment
other than by remediation specified in codes

A61-A69

A94 Laboratory wastes

A99 Other

#### **Appendix D. System Type Codes**

#### **Code System Type Description**

**METALS RECOVERY (FOR REUSE)** 

M011 High-temperature metals recovery

M012 Retorting

M013 Secondary smelting

M014 Other metals recovery for reuse: e.g., ion

exchange, reverse osmosis, acid leaching, etc.

M019 Metals recovery—type unknown

**SOLVENTS RECOVERY** 

M021 Fractionation/distillation M022 Thin film evaporation M023 Solvent extraction

M024 Other solvent recovery

M029 Solvents recovery—type unknown

OTHER RECOVERY

M031 Acid regeneration

M032 Other recovery: e.g., waste oil recovery, nonsolvent

organic recovery, etc.

M039 Other recovery—type unknown

INCINERATION

M041 Incineration—liquid
M042 Incineration—sludge
M043 Incineration—solids
M044 Incineration—gases

M049 Incineration—type unknown

**ENERGY RECOVERY (REUSE AS FUEL)** 

M051 Energy recovery—liquid
M052 Energy recovery—sludge
M053 Energy recovery—solids

M059 Energy recovery—type unknown

**FUEL BLENDING** 

M061 Fuel blending

**AQUEOUS INORGANIC TREATMENT** 

M071 Chrome reduction followed by chemical

precipitation

M072 Cyanide destruction followed by chemical

precipitation

M073 Cyanide destruction only

M074 Chemical oxidation followed by chemical

precipitation

M075 Chemical oxidation only

M076 Wet air oxidation

M077 Chemical precipitation

M078 Other aqueous inorganic treatment: e.g., ion

exchange, reverse osmosis, etc.

M079 Aqueous inorganic treatment—type unknown

AQUEOUS ORGANIC TREATMENT

M081 Biological treatment M082 Carbon adsorption M083 Air/steam stripping M084 Wet air oxidation

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M085 Other aqueous organic treatment

M089 Aqueous organic treatment—type unknown

#### **Code System Type Description**

#### **AQUEOUS ORGANIC AND INORGANIC TREATMENT**

M091 Chemical precipitation in combination with

biological treatment

M092 Chemical precipitation in combination with carbon

adsorption

M093 Wet air oxidation

M094 Other organic/inorganic treatment

M099 Aqueous organic and inorganic treatment—type

unknown

#### **SLUDGE TREATMENT**

M101 Sludge dewatering
M102 Addition of excess lime
M103 Absorption/adsorption
M104 Solvent extraction

M109 Sludge treatment—type unknown

#### **STABILIZATION**

M111 Stabilization/chemical fixation using cementitious

and/or pozzolanic materials

M112 Other stabilization

M119 Stabilization—type unknown

#### OTHER TREATMENT

M121 Neutralization only
M122 Evaporation only
M123 Settling/clarification only

M124 Phase separation (e.g., emulsion breaking,

filtration) only

M125 Other treatment

M129 Other treatment—type unknown

#### **DISPOSAL**

M131 Land treatment/application/farming

M132 Landfill

M133 Surface impoundment (to be closed as a landfill)

M134 Deepwell/underground injection

M135 Direct discharge to sewer/POTW (no prior

treatment)

M136 Direct discharge to surface water under NPDES

(no prior treatment)

M137 Other disposal

#### STORAGE

M141 Storage

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## Appendix E. Unit Type Codes

Code	Unit Description
01	Surface impoundment
02	Sump
03	Waste pile
04	Incinerator
05	Open controlled incineration area
06	Boiler
07	Industrial furnace (energy producing)
08	Thermal processing unit, other than incinerator
09	Landfill
10	Land treatment unit
11	Injection well
12	Reserved (do not use this number)
13	Tank
14	Container storage area
15	Reserved (do not use this number)
16	Distillation/solvent recovery unit
17	Wastewater treatment plant
18	Tank (surface)
19	Tank (subsurface)
20	Reserved (do not use this number)
21	Reserved (do not use this number)
22	Miscellaneous storage containers
23	Containment building
24	Waste compactor

MAIN J-5 BOTTOM DESK DRAWER 8-5-09 0905 HRS

## **Two Incident Reports**

May 20, 2009

Port Arthur Chemical and Environmental Services, LLC ("PACES")

2420 South Gulfway

Port Arthur, TX 77640

713-676-1460

# Two Incident Reports Joey Sutter and Charles Sittig

#### **Joey Sutter**

#### Pre-Incident

Several days before December 17, 2008 Trailer 267 was loaded with oil from an emulsion breaking process at the PACES site 2420 South Gulfway, Port Arthur, TX.

On December 17, 2008, Brian Weathers sampled Trailer 267, removing a sample of the oil from inside the trailer (See Attachment 1).

#### Incident

On December 18, 2008, at 2:00pm, Suzi Mock and Joey Sutter went to Trailer 267 to resample the oil in the trailer. Ms. Mock climbed to the top of Trailer 267 first. Mr. Sutter started up the ladder after and behind Ms. Mock. As Mr. Sutter reached the top of the latter he collapsed. Ms. Mock grabbed Mr. Sutter so he would not fall from the Trailer 267. Ms. Mock pulled Mr. Sutter to the top of the Trailer 267. Mr. Sutter and Ms. Mock did not open the dome lid nor did she or Mr. Sutter obtain a sample at this time. This was at 2:00pm, Thursday, December 18, 2008.

Ms. Mock called for help and at 2:10pm (12/18/08) the Port Arthur Fire Department was notified (See Attachment 2). Within a few minutes of 2:00pm (12/18/08) Mr. Wood went to Ms. Mock to assist her with Mr. Sutter. Mr. Wood also assisted Ms. Mock to turn Mr. Sutter over, still on top of the Trailer 267.

At 2:20pm (12/18/08) the PAFD arrived and by 2:35pm, Mr. Sutter was removed from the top of the Trailer 267 by the Port Arthur Fire Department (See Attachment 2).

Ms. Mock did not experience any illness from any hydrogen sulfide release when she was with Mr. Sutter on top of the Trailer 267. Ms. Mock's personal hydrogen sulfide monitor did not trigger when she was on top of the Trailer 267. Ms. Mock's monitor was set to alarm at 10 ppm hydrogen sulfide. Mr. Wood did not experience any illness from hydrogen sulfide while assisting Mr. Sutter.

The Port Arthur Fire Department placed Mr. Sutter's clothes and the PAFD hydrogen sulfide meter in a bag. The Port Arthur Fire Department measured a reading of -0-hydrogen sulfide. The Port Arthur Fire Department returned to the top of Trailer 267 two hours after Mr. Sutter was removed and measured only 1 ppm hydrogen sulfide (See Attachment 2).

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#### Post Incident

OSHA tested Mr. Sutter's clothes for hydrogen sulfide and did not find any hydrogen sulfide (See Attachment 3). OSHA tested the head space over an oil sample from Trailer 267 and did not find any hydrogen sulfide (See Attachment 4).

Hydrogen sulfide technical information sources state that it takes 700 to 1000 ppm of hydrogen sulfide to knockdown an individual with hydrogen sulfide. In addition, when a group of people are together near a hydrogen sulfide release all persons suffer health problems (See Attached 5).

OSHA measured organic sulfur compounds in the oil which exhibits a smell similar to hydrogen sulfide, but the organic sulfur compounds are liquid at ambient temperatures and not a toxic gas.

In addition, the oil in Trailer 267 was not heated prior to the December 18, 2008 incident, since no steam was available and the trailer had been loaded prior to December 17, 2008 without any modifications of the oil for two days (See Attachment 6).

In summary, pre-incident information and post incident information does not support the concept that hydrogen sulfide was released from a trailer during a short time of a few minutes at such level of 700 to 1000 ppm to cause one of two people side-by-side to collapse and die in minutes while the second person is holding on to the dying person without having her personal hydrogen sulfide alarm activate (See Attachment 7).

In addition, a third person climbed to the top of Trailer 267 to assist the two already on trailer without getting sick from hydrogen sulfide. Also, the Port Arthur Fire Department representative did not note any problems with anyone other than Mr. Sutter. Remember, Trailer 267 was sampled the day before with out any problems.

#### **Joey Sutter Autopsy Comments**

The autopsy based its conclusions on a lab report from NMS Labs dated March 25, 2009. This NMS Lab Report based its conclusion on one test of one blood sample which was received on March 5, 2009 by NMS Labs, when the death occurred on December 18, 2008. This delay in testing appears to have violated acceptable protocols.

The NMS Lab Report did not state that Mr. Sutter died from hydrogen sulfide poisoning. The report stated that the measured value of thiosulfate in the blood sample was similar to values found in four other situations where people were believed to have died from hydrogen sulfide. However, the thiosulfate value of 43% of the cases were above 11 mcg/ml (value measured in Mr. Sutter's blood) and 43% were below the 11 mcg/ml value. The NMS Lab Report did not speak to another NMS Lab analysis report on urine from Mr. Sutter received January 15, 2009 (See Attachment 8). This report stated that thiosulfate in urine was normal. Technical information states that thiosulfate in urine is just as valid as thiosulfate in blood for measuring hydrogen sulfide exposure.

May 20, 2009 Two Incident Reports Page 2 of 4

Both the NMS Lab (3/25/09) report and the Mr. Sutter Autopsy had many facts wrong. For example, both stated that the site operator (PACES) was boiling water in a closed dome tank (trailer) to drive off hydrogen sulfide. Remember, this material is oil in a tanker which is not heated, since no steam was available. Also, the thiosulfate analysis of the blood did not follow correct procedures, where the thiosulfate test in the urine did follow correct lab procedures.

The Sutter Autopsy Report did show that Mr. Sutter was over weight to the point of being obese and a smoker.

#### **Charles Brent Sittig**

#### Incident

On April 14, 2009, Charles Brent Sittig (truck driver for PACES) returned to the site with a load of weak caustic solution that was not loaded by him. Mr. Sittig parked the tractor and trailer to be unloaded by another person and moved away from the trailer into the maintenance office area of the plant site.

Mr. Sittig sat in a chair and collapsed while making a telephone call. Mr. Sittig was a few feet away from the maintenance person who went to him after he collapsed. The maintenance person did not have any affects from hydrogen sulfide and there was not any hydrogen sulfide release or triggered any alarms.

#### Post Incident

May 20, 2009

The material from Mr. Sittig's truck was placed in NV1 Tank and tested for sulfides. The measured sulfide in the material was less than 1 ppm sulfide (See Attachment 9).

Data from Mr. Sittig's file shows that he was overweight. In the past his blood pressure was close to values that would disqualify him as a driver.

In summary, Mr. Sittig was not engaged in activity at the time of death. There was no hydrogen sulfide released at the time of his death. Mr. Sittig was near others that did not experience any hydrogen sulfide problems and his trailer contained material that was below 1 ppm sulfide which he did not load or unload.

Two Incident Reports Page 3 of 4

# Summary of Both Incident Reports (Mr. Sutter and Mr. Sittig)

Hydrogen sulfide poisoning could have not been the mechanism that caused the two deaths, since the exposure level (700 to 1000 ppm) required to knockdown and kill quickly would have affected companions, triggered alarms, showed up in clothes, and introduced odors over a wide area since the odor threshold of hydrogen sulfide is 0.005 ppm.

In addition, low levels of hydrogen sulfide over long periods of time would not have been a factor in the deaths since recent and past results show no adverse impacts from low levels of hydrogen sulfide. Most recent data shows that low levels of hydrogen sulfide lowers blood pressure (See Attachment 10).

Page 4 of 4

### **General Affidavit**

STATE OF TEXAS
COUNTY OF Jefferson
BEFORE ME, the undersigned Notary, atricia Grace Kruger, on this
3 day of March, 2009, personally appeared Brian Weathers
known to me to be a credible person and of lawful age, who being by me duly
sworn, on his oath, deposes and says:
My name is Brian Weathers. I am over 21 years of age. I was the Supervisor on December 17, 2008 and on December 18, 2008 at the Port Arthur Chemical and Environmental Services, LLC ("PACES") plant site at the time Joey Sutter passed away. I have personal knowledge and experience with the PACES' personal H <sub>2</sub> S Monitoring Equipment and Sampling of Trailers. During of December 17, 2008 my H <sub>2</sub> S alarm at PACES did not sound an alarm warning when I obtained a sample from Trailer 267. H <sub>2</sub> S Monitor was set at 10 ppm H <sub>2</sub> S to alarm on December 17, 2008 when I sampled the Trailer 267.
Brian Weathers
(Printed Name of Affiant)
(Address of Affiant, Line 1)
(Address of Affiant, Line 2)
STATE OF TEXAS COUNTY OF Jefferson
Sworn to and subscribed before me on this 3_ day of March, 200%,
by
National Grace Krayer (Notary Public Signature)  National Grace Krayer (Notary Public Signature)  National Grace Krayer (Notary Public Signature)  National Grace Krayer (Notary Public Signature)  National Grace Krayer (Notary Public Signature)  National Grace Krayer (Notary Public Signature)

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D Aid Given or Received*	Date. Alarm * 12 18 2008 14:10:33 Shift or Alarms District Platoon
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N X None	Last Unit
F Actions Taken *	G1 Resources * G2 Estimated Dollar Losses & Values  Y Check this box and skip this LOSSES: Remired for all fixed if known Options
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Church, place of worship  Classification of the control of the con	342 Doctor/dentist office 579 Motor vehicle/boat sales/repair 361 Prison or jail, not juvenile 571 Gas or service station 419 1-or 2-family dwelling 599 Business office 429 Multi-family dwelling 615 Electric generating plant 439 Rooming/boarding house 629 Laboratory/science lab 449 Commercial hotel or motel 700 Manufacturing plant 459 Residential, board and care 819 Livestock/poultry storage(barn) 464 Dormitory/barracks 882 Non-residential parking garage 519 Food and beverage sales 891 Warehouse
Outside  .24 Playground or park  .55 Crops or orchard  .69 Forest (timberland)  .07 Outdoor storage area  .19 Dump or sanitary landfill  .31 Open land or field	936 Vacant lot 981 Construction site 938 Graded/care for plot of land 984 Industrial plant yard 946 Lake, river, stream 951 Railroad right of way Lookup and enter a Property Use code only if you have NOT checked a Property Use box: 960 Other street Property Use 891 961 Highway/divided highway 962 Residential street/driveway Warehouse

NH715 12/18/2008 08-0012882

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neck ox if X 294 50 ime ; Officer Member making rep i charge.	PEAK	Position or rank Assignment Month Day Year

NH715 12/18/2008 08-0012882

MM DD YYYY Complete TX NH715 12 18 2008 2 08-0012882 000 Narrative Incident Date \* Incident Number \* Station Exposure 4

#### Narrative:

On 12/18/2008 at 14:10:33 dispatched To 2420 S Gulfway DR /PORT ARTHUR, TX 77640. The location is a Warehouse. The incident was determined to be a(n) EMS call, excluding vehicle accident with injury.

14:19:20 arrived on scene.

The following actions were performed on scene:
 Extricate, disentangle
 Provide advanced life support (ALS)

Units responding were: Unit E2 responded. Unit HR1 responded. Unit SC63 responded.

16:45:03 all units back in service.

Dispatched to difficulty breathing. While enroute the call was upgraded to a full arrest. AOSTF patient on top of a tanker. Company emloyees had begun cpr. Fire engineer Barideaux and fire fighter Delacerda climbed on top of tanker and took over cpr. Captain Peake directed resources needed for the retrieval of patient from atop the tanker. Company employee made mention that the patient may have been exposed to toxic fumes. FD backboarded the patient and lowered the patient to the ground and onto waiting Stat Care ems stretcher. Fire fighter Thibedeaux rode with patient to SMH to assist ems.

HR1 went to SMH while E2 gathered patient info. E2 went to SMH and found hospital doing a hazmat wash on patient. E2 returned to scene to take drager readings from top of tanker. Trager read 1 ppm of H2S. Obtained msds sheet on tanker contents. Msds showed chemical to be sulfurized isobutylene. Toxicological Data showed all areas to be: Practically non-toxic. E2 returned to SMH msds sheet for distribution to the hospital and JP. E2 returned to service.

#### HR-1 Supplement:

HR-1 responded to assist. FF Thibodeaux rode in with EMS to St. Mary. Upon arrival the EMS staff complained of a strong odor from the pt. and his clothing. Hospital staff removed clothing and placed into a biohazard bag. FD placed a meter in the bag. The meter detected no lel, no H2S, no CO, and indicated an O2 % of 20.9. The deceased was placed in a secure room ouitside of the ER. FF Thibodeaux was provided with scrubs from the hospital and was

rt Arthur F.D. NH715 12/18/2008 08-0012832

#### Narrative:

able to remove her clothing and shower. Capt. Achord and FE Richard donned class B suits and airpacks and assisted in placing the deceased into two body bags for transfer to the morgue. Both the class B suits and the pt.'s clothing went with the decedant to the morgue.

Arthur F.D. NH715 12/18/2008 08-0012882

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Personnel ID	Name	Rank or Grade	Attend X	Action Taken	1 1	Action Taken	Action Taken



Port Arthur Fire Department Haz-Mat Sampling Tanker Unit 267 (Close-up)

See Port Arthur Fire Department Incident Report # 08-0012882 Page 3 HR-1 Supplement
Indicating Draeger Read of 1 ppm of H2S (Incident Report Attached)

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### Hydrogen Sulfide Poisoning: Clarification of Some Controversial Issues

#### Thomas H. Milby, MD,\* and Randall C. Baselt, PhD1

**Background** Hydrogen sulfide is a toxic gas about which much has been written. We discuss here several issues we believe would benefit from further clarification.

Conclusions We conclude that: 1) Certain neurotoxic effects of exposure are probably due to a direct toxic effect on the brain, while others are almost certainly a result of hypoxia secondary to  $H_2S$ -induced respiratory insufficiency; 2) pulmonary edema is a common consequence of poisoning and there is suggestive evidence of hyperactive airway responses in some individuals following brief  $H_2S$ -induced unconsciousness (knockdown); 3) criteria for acceptable community levels are very different than those governing occupational standards; 4) urinary thiosulfate determinations can be useful for monitoring occupational exposure; and 5) determination of sulfide ion concentrations in blood or major organs can be useful in corroborating a diagnosis of fatal  $H_2S$  toxicity, but there are many pitfalls in collecting, storing, and analyzing tissue and fluid samples. Am. J. Ind. Med. 35:192-195, 1999. © 1999 Wiley-Liss, Inc.

KEY WORDS: hydrogen sulfide; neurotoxic effects; pulmonary edema; urinary thiosulfate; blood sulfide.

#### **INTRODUCTION**

There have been several reviews of the toxicity of hydrogen sulfide to humans published in the last several decades [Milby, 1962; NRC, 1979; Beauchamp et al., 1984; Reiffenstein et al., 1992; EPA, 1993]. In the view of the authors, the majority of the data presented in these reviews continues to be valid, but some issues deserve further clarification. In this short communication, we consider the neurotoxic effects of acute exposure, effects on the lungs, community exposure issues, and diagnosis of poisoning utilizing urine, blood, and tissue analyses.

#### **NEUROTOXIC EFFECTS**

The above-cited reviews are generally consistent in the view that the most dramatic potential consequences of hydrogen sulfide exposure occur at high concentrations. At

750–1,000 ppm, inhalation of hydrogen sulfide causes abrupt physical collapse. If exposure is promptly terminated, many cases of collapse are followed by rapid and complete recovery. However, in some instances, presumably where exposure is more pronounced or prolonged, sudden collapse may give way to rapidly fatal respiratory paralysis [Milby, 1962; EPA, 1993; Guidotti, 1994].

Certain transitory neurotoxic effects associated with exposure to hydrogen sulfide such as dizziness, incoordination, and headache are probably due to the direct toxic effect of hydrogen sulfide on the brain: these effects appear far too quickly to be attributed to hypoxia. A phenomenon referred to as "knockdown" has been reported in oil field workers and others to describe sudden, brief loss of consciousness followed by immediate full recovery after short-lived exposure to very high concentrations of hydrogen sulfide (e.g., 750–1,000 ppm) [Guidotti, 1994; Aves, 1929; Smith and Gosselin, 1979]. Knockdown is likely a consequence of a direct toxic effect of hydrogen sulfide on the brain. This direct effect is believed to be due to the intracellular inhibition of cytochrome oxidase by sulfide ion, preventing utilization of oxygen [Nicholls, 1975].

Most victims of acute hydrogen sulfide poisoning who recover do so promptly and completely [Milby, 1962; NRC,

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Legal Medicine 10 (2008) 148-152

LEGAL MEDICINE

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#### Case Report

# Two fatalities by hydrogen sulfide poisoning: Variation of pathological and toxicological findings

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Received 28 July 2007; received in revised form 26 November 2007; accepted 29 November 2007 Available online 8 February 2008

#### Abstract

We report the simultaneous deaths of two individuals by inhalation of hydrogen sulfide (H<sub>2</sub>S), produced either by the putrefaction of a large quantity of sweet corn or by heavy oil that flowed out of the fuel tank of a large stranded cargo vessel. Ten workers went into a water ballast tank of the vessel to remove remaining heavy oil and suddenly felt unwell. Two of the ten workers (patient A, a male in his early thirties, and patient B, a male in his early sixties) died. Autopsies of the two patients revealed a partial green discoloration of the skin and pulmonary edema. Toxicological analysis revealed high levels of thiosulfate in the blood (0.089 mmol/L in patient A and 0.142 mmol/L in patient B). From these findings, we concluded that the cause of death in both patients was H<sub>2</sub>S poisoning. In addition, the autopsy of patient A revealed petechiae of the palpebral conjunctiva and the mucous membrane of the mouth and erosion of the respiratory tract. The autopsy of patient B failed to reveal these observations. We presumed that patient B may have been exposed to higher H<sub>2</sub>S levels, and that the circulation and respiration of patient B may have arrested faster than patient A. Thiosulfate levels in the blood may reflect the levels of H<sub>2</sub>S exposure. This case suggests that the pathological and toxicological findings of H<sub>2</sub>S poisoning vary from case to case.

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Keywords: Hydrogen sulfide poisoning; Thiosulfate; Pulmonary edema; Autopsy

#### 1. Introduction

Hydrogen sulfide (H<sub>2</sub>S) is a colorless irritant gas that is inflammable and water-soluble. H<sub>2</sub>S has a specific gravity of 1.19 (air = 1.00) and the characteristic odor of rotten eggs [1]. H<sub>2</sub>S is poisonous, and accidents may occur on exposure to natural gas, volcanic gas, and industrial waste. Accidents have been reported in sewage disposal facilities [2–5] and chemical processing plants [6–8], and with the ingestion of sulfur products [9,10]. H<sub>2</sub>S is also produced naturally by the putrefaction of organic compounds. The gas produced by this process is unstable and is rapidly metabolized as thiosulfate and sulfate by hepatic oxidation, therefore, quantifying the original substances is difficult [11,12]. Fatalities by H<sub>2</sub>S poisoning are encountered frequently in the forensic

#### 2. Case report

A large-sized cargo vessel, approximately 36,000 tons, which was in transit with a large quantity of sweet corn, was destroyed by breaking in two due to stranding in a gulf under a heavy typhoon. The stranded cargo vessel was covered widely with a large amount of heavy oil that issued from

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practices. There is a large amount of sulfate in the blood and urine of healthy people, whereas the thiosulfate content is very low [11,13]. In addition, thiosulfate is a major metabolite of H<sub>2</sub>S [11]. For these reasons, thiosulfate has been reported to be a useful indicator for H<sub>2</sub>S exposure [2-4,11,14-17]. Here, we report a case of two patients who died almost simultaneously due to H<sub>2</sub>S poisoning. In this case, the pathological and toxicological findings were different between the two patients. We compare the findings and discuss the variable biomechanisms of H<sub>2</sub>S poisoning.

<sup>\*</sup> Corresponding author. Tel.: +81 99 275 5313; fax: +81 99 275 5315. E-mail address: agomiho@m.kufm.koagoshima-u.ac.jp (M. Ago).

the fuel tank. Accordingly, an operation was performed to eliminate the heavy oil inside and around the cargo vessel. At approximately one month after the accident, ten workers, including our two patients entered a water ballast tank to recover the remaining heavy oil. At 11:15 a.m., all of the workers suddenly felt unwell. Eight workers escaped by themselves from the tank with clouded consciousness. At 11:58 a.m., rescue personnel equipped with gas masks found collapsed patient A (male in his early thirties) sitting on a sloped floor and leaning on a wall. At 11:59 a.m., they found collapsed patient B (male in his early sixties) lying prone on a sloped floor. His head was located on the upper side of the sloped floor. Although a small amount of black sludge had Collected on the bottom of the sloped floor, the nose and mouth of both patients were not submerged in the sludge. Rescue personnel retrieved patient A from the tank at 0:04 p.m. and patient B at 0:16 p.m. The patients arrived at a hospital at 0:59 p.m. in a state of cardiopulmonary arrest. They were pronounced dead at 1:03 p.m. (patient A) and 1:04 p.m. (patient B), respectively. After using an electric fan to remove the harmful gas from the tank and about 4 h after the accident, the air concentration of H<sub>2</sub>S, oxygen (O<sub>2</sub>), and carbon monoxide (CO) at the scene were estimated to be 30 ppm, 20.8% and 355 ppm, respectively. Autopsies on patient A and B were performed at 20 and 24 h after death, respectively.

#### 3. Autopsy findings

#### 3.1. Patient A

Patient A was a male in his early thirties. He was 169 cm in height and 68 kg in weight. A slight greenish discolor-

ation presented on his anterior cervical region and precordia. A few black subcutaneous bleedings were observed on regions of back and upper and lower limbs. The palpebral conjunctiva and the mucous membrane of the mouth revealed marked hyperemia and a few petechiae. The ocular conjunctiva revealed marked hyperemia, but was free of petechiae. The heart weighed 330 g, and a large amount of black dark-red fluid blood was retained in the heart. The left and right lungs weighed 830 and 925 g, respectively, with marked swelling and congestion. There was a little dark brown-red mucous fluid mixed with the micro foam in the trachea and bronchia. The mucous membrane of the glottis, trachea and bronchia revealed extensive erosion and submucosal hemorrhage (Fig. 1A). Extensive erosion and submucous hemorrhages were seen in the entire inner membrane of the esophagus. Erosion was found in the posterior wall of the fundus ventriculi and the cardia of the lesser curvature of the stomach. The lumen of the small intestine revealed congestion and localized erosion. The liver and the spleen weighed 1800 and 120 g, respectively, and both organs revealed no remarkable changes except for congestion. The brain weighed 1480 g, and slight cerebral edema was noted. There were no remarkable findings in other organs except for congestion.

Histological examination revealed marked congestion and edema in both lungs. Marked congestion, erosion and submucosal hemorrhage, as well as edema of the tunica propria and tela submucosa were observed in the epiglottis, glottis vocalis (Fig. 2A), trachea and bronchia. Similar findings were observed in the esophagus and stomach. Severe necroses were noted in the tracheal and bronchial glands. No remarkable changes, except for congestion, were found in other organs including the liver.

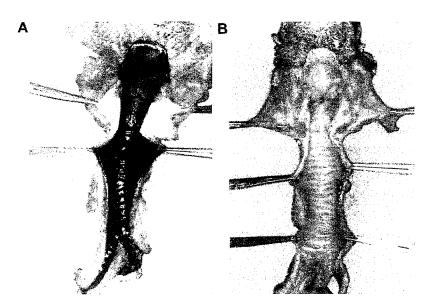


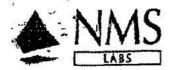
Fig. 1. The trachea of patient A (A) and B (B). The mucous of patient A reveals extensive erosion and the submucous bleeding, whereas the mucous of patient B reveals hyperemia, but is free of erosion.

### **General Affidavit**

STATE OF TEXAS	
COUNTY OF	-
BEFORE ME, the undersign	ed Notary,, on this
day of	, 2009, personally appeared <u>Matt Bowman</u>
known to me to be a credible	e person and of lawful age, who being by me duly
sworn, on his oath, deposes	and says:
on December 18, 2008, at the LLC ("PACES") plant site at knowledge of the PACES op	vman. I am over 21 years of age. I was the President e Port Arthur Chemical and Environmental Services, the time Joey Sutter passed away. I have personal erations. During the morning and afternoon of 67 was not heated with steam or any other source of ble."
(Signature of Affiant)  Matt Bowman  (Printed Name of Affiant)	<del></del>
(Home Address)	
(City, State & Zip)	<del>_</del>
STATE OF TEXAS	
COUNTY OF	
Sworn to and subscribed be	fore me on this day of, 2009,
by	······································
SEAL	(Notary Public Signature)

## **General Affidavit**

STATE OF TEXAS
COUNTY OF Julius
BEFORE ME, the undersigned Notary, PATRICIA GRACE Kruge, on this
Known to me to be a credible person and of lawful age, who being by me duly
sworn, on her oath, deposes and says:
My name is Suzie Mock. I am over 21 years of age. I was an employee on December 18, 2008 at the Port Arthur Chemical and Environmental Services, LLC ("PACES") plant site at the time Joey Sutter passed away. I have personal knowledge and experience with the situation during the incident involving Joey Sutter. During the morning and afternoon of December 18, 2008 my personal monitor for the H <sub>2</sub> S did not sound an alarm warning. My personal H <sub>2</sub> S Monitor Alarm was set at 10 ppm for H <sub>2</sub> S on December 18, 2008.
Suz moul
(Signature of Affiant)
Suzie Mock (Printed Name of Affiant)
(b) (6)
(Address of Affiant, Line 1)
(Address of Affiant, Line 2)
STATE OF TEXAS
COUNTY OF Lefferson
Sworn to and subscribed before me on this 310 day of March, 2009,
by
SEAL  Patricia Grace Krisger  Netary Public  Stete of Texas  Ny Commission Express  May 29, 2010
CONTRACTOR OF THE PROPERTY OF



#### **NMS Labs**

CONFIDENTIAL

3701 Welsh Road, PO Box 433A, Willow Grove, PA 19090-0437 Phone: (215) 657-4900 Fax: (215) 657-2972 e-mail: nms@nmslabs.com

Robert A. Middleberg, PhD, DABFT, DABCC-TC, Laboratory Director

Toxicology Report

Report Issued 01/20/2009 17:00

To: 10240

Southeast Texas Forensic Ctr.-Beaumont

Attn: Dr. Tommy Brown

5030 Highway 69 South, Ste.700

Beaumont, TX 77705

Patient Name SUTTER, JOEY

Patient ID

08-1253

Chain

10973749

Age Gender Not Given

Workorder Page 1 of 2 09009238 APR 7 2 ZUU9

Justice court, Pct. 8

FILED

Positive Findings:

Compound	Result	Units	Matrix Source	
Creatinine	1959	.mg/L	Urine	
Thiosulfate	3.4	mcg/mL	Urine	
Thiosulfate (Creatinine corrected)	1.7	mcg/g Creat	Urine	

See Detailed Findings section for additional information

#### Specimens Received:

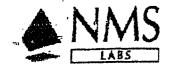
ID	Tube/Container	Volume <i>i</i> Mass	Collection Date/Time	Matrix Source	Miscellaneous Information
001	Gray Top Tube	10.75 mL	Not Given	Blood	
002	Red Top Tube	9.75 mL	Not Given	Urine	

All sample volumes/weights are approximations.

Specimens received on 01/15/2009.

#### Testing Requested:

A natysis Code	Description			
4235B	Sulfhemoglobin, Blood			
4472U	Thiosulfate, Urine			



#### CONFIDENTIAL

Workorder Chain 09009238 10973749

Patient ID

08-1253

Page 2 of 2

#### **Detailed Findings:**

Analysis and Comments	Result Units		Rpt. Limit	Specimen Source	Analysis By	
Creatinine	1959	mg/L	5.0	002 - Urine	Colorimetry	
Thiosulfate	3.4	mcg/mL	1.0	002 - Urine	IC	
Thiosulfate (Creatinine corrected)	1.7	mcg/g Creat	0.51	002 - Urine	IC	

Other than the above findings, examination of the specimen(s) submitted did not reveal any positive findings of toxicological significance by procedures outlined in the accompanying Analysis Summary.

#### **Reference Comments:**

1. Creatinine - Urine:

ACGIH Normal range in adults: 300 - 3400 mg/L (mean: 1000 mg/L) [0.3 - 3.4 g/L (mean: 1 g/L)] 1000 - 1600 mg/day (1.0 - 1.6 g/day).

2. Thiosulfate - Urine:

Thiosulfate is a byproduct of the metabolic degradation of cysteine and methionine. As a result, normal endogenous levels of thiosulfate can be found in urine. However, whether normal levels of thiosulfate can be found in serum, plasma or whole blood is debatable. Certain environmental exposures, dietary conditions and pathological states can give rise to increased urinary levels of thiosulfate as well as significant concentrations in serum, plasma and/or whole blood. Hydrogen sulfide exposure is a common source of increased urinary and serum levels of thiosulfate.

Reported endogenous thiosulfate levels in urine range from 1 - 5 mcg/mL.

3. Thiosulfate (Creatinine corrected) - Urine:

Normal: Up to 8 mcg/g Creatinine.
15 hours after a 60 minute exposure to air concentrations of 60 micromoles/L Hydrogen Sulfide resulted in urine concentrations up to 60 mcg/g Creatinine.

This analysis was performed under chain of custody after receipt at NMS Labs. The chain of custody documentation is on file at NMS Labs.

Unless alternate arrangements are made by you, the remainder of the submitted specimens will be discarded six (6) weeks from the date of this report; and generated data will be discarded five (5) years from the date of this report.

#### **Analysis Summary:**

Acode 4235B - Sulfhemoglobin, Blood

- Analysis by Spectrophotometry (SP) for Sulfhemoglobin

Acode 4472U - Thiosulfate, Urine

- Analysis by Colorimetry (C) for: Creatinine
- Analysis by Ion Chromatography (IC) for Thiosulfate, Thiosulfate (Creatinine corrected)

### **Charles Brent Sittig**

Attached is the incident report which states that Mr. Sittig was driving a tractor with a trailer loaded with Naphthenic caustic. The trailer was loaded for him at a refinery. Mr. Sittig drove to PACES and the material was unloaded without his help into Tank NV1. When Mr. Sittig died he was away from the trailer and Tank NVI with other people (e.g. Glen Olson). After Mr. Sittig died the material from NV1 was sampled and analysis of sulfides. The value measured by Set Environmental was less than 1 ppm for NV1(See Attachment). No alarms were triggered and No other people reported H2S exposure at the time of the death.

#### Accutest Laboratories

### Report of Analysis

Page 1 of 1

Client Sample ID:	NUI			
Lab Sample ID:	T27869-1	Date Sampled:	04/15/09	
Matrix:	AQ - Water	Date Received:	04/24/09	
		Percent Solids:	n/a	
Project:	CES			

General Chemistry

Analyte	Result	MQL	SDL	Units	DF	Analyzed	Ву	Method
Hydroxide Alkalinity	0.0300	5.0	0.66	mg/l	1	04/29/09 15:00	мс	SM18 4500CO2D
Sulfide	0.15 U	8.0	0.15	mg/l	1	04/29/09 13:00	KD	SM 4500S+F

MQL = Method Quantitation Limit SDL = Sample Detection Limit

 $\begin{array}{l} U = Indicates \ a \ result \ < SDL \\ B = Indicates \ a \ result \ > = SDL \ but \ < MQL \end{array}$ 



## Attachment 10



Advancing the Possibilities'

Atlanta GA - 404 778,7777 I 800 75,EMORY

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Hydrogen Sulfide Gas Shows Promise for Treating Heart Failure

November 11, 2008

At low concentrations, the toxic gas hydrogen sulfide protects the hearts of mice from heart failure, scientists at Emory University School of Medicine have found.

Their findings, presented Nov. 11 at the American Heart Association (AHA) Scientific Sessions conference in New Orleans, suggest that doctors could use hydrogen sulfide to treat humans with heart failure.



Best known for its rotten-egg smell, hydrogen sulfide can pose a deadly threat to miners or sewer workers. However, scientists have recently found that enzymes within the body produce the gas in small, physiological amounts, with multiple beneficial effects such as regulating blood pressure and attenuating inflammation.

David Lefer, PhD, professor of surgery at Emory University School of Medicine, and his team created a model of heart failure in mice by blocking their left coronary arteries either temporarily for an hour or permanently, causing part of their heart muscles to die. Hydrogen sulfide was administered intravenously once a day for a week.

John Calvert, PhD, assistant professor of surgery working with Lefer, will present the findings at the AHA Meeting. "Our results show that hydrogen sulfide can blunt the impact of heart failure on heart function and mortality in a mouse model of heart failure," Calvert says.

Four weeks after artery blockage, mice treated with hydrogen sulfide had an ejection fraction, a measure of heart function, about a third larger than controls (36 compared to 27 percent). He and his colleagues also found similar effects in mice engineered to make more of an enzyme that generates hydrogen sulfide.

Heart failure, a leading cause of hospitalization for the elderly, describes a situation when the heart muscle cannot pump enough blood to meet the body's needs. Previous injury to the heart muscle from a heart attack, obesity, diabetes or high blood pressure all are contributing factors.

In a separate presentation, Calvert presented experimental data on how hydrogen sulfide works in the heart. The gas appears to stimulate heart muscle cells to produce their own antioxidants and molecules that stave off programmed cell death, a response to the loss of blood flow.

Both Calvert and Lefer are based at Carlyle Fraser Heart Center at Emory Crawford Long Hospital in Atlanta. Some of the research was performed at Albert Einstein College of Medicine in New York, with Susheel Gundewar, Saurabh Jha and John Elrod.

The research was funded by the National Institutes of Health, the American Diabetes Association and by a research grant from the biotechnology firm Ikaria Holdings. Lefer is a paid consultant for Ikaria, which is developing technology for hydrogen sulfide delivery.

About Emory Heart & Vascular Center

Emory Heart & Vascular Center doctors are committed to providing clinically excellent cardiovascular patient care, pioneering innovative clinical research and training the best heart specialists in the world. A component of Emory Healthcare, the Center is consistently recognized by U.S. News & World Report as one of the top heart centers in the country. Emory Healthcare is the clinical arm of Emory University's Woodruff Health Sciences Center and is the largest, most comprehensive health care system in Georgia.

5/7/2009

#### General Affidavit

	STATE OF TEXAS
	COUNTY OF Specis
	BEFORE ME, the undersigned Notary, Juanila Thomas, on this
	22 day of May , 2009, personally appeared Matt Bowman
	known to me to be a credible person and of lawful age, who being by me duly
	sworn, on his oath, deposes and says:
	"My name is Matt Bowman. I am over 21 years of age. I was the President on December 18, 2008, at the Port Arthur Chemical and Environmental Services, LLC ("PACES") plant site at the time Joey Sutter passed away. I have personal knowledge of the PACES operations. During the morning and afternoon of December 18, 2008, Trailer 267 was not heated with steam or any other source of heat. Steam was not available."
	(Signature of Affiant)  Matt Bowman  (Printed Name of Affiant)  (D) (6)  (Home Address)
	(City, State & Zip)
	STATE OF TEXAS
j	COUNTY OF <u>Texas</u>
6 6	Sworn to and subscribed before me on this 22 day of May , 2009, by Junita Huma.
0.5	SEAL Manta Public Signature)  JUANITA THOMAS  Nature Public State of Towns
1	Notary Public, State of Texas  My Commission Expires

## **Attachment**

1

Dan-You received an e-mail from Eddie Pangariban regarding these. — Morgan Please look over, a couple things need to be added that I didn't know the answer to. ADD PFI - hanks

Lignid Block Powder Wash.



HOUSTON LABORATORY 8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

#### Calpine Op Services, Inc.

#### Certificate of Analysis Number:

#### 08041737

Report To: **Project Name: Brazos Valley** Site: Richmond, TX 77469 Calpine Op Services, Inc. Eddle Panganiban Site Address: 3440 Lockwood Rd PO Number: BRZOM-MX20031179 Richmond State: Texas TX 77469-T104704205-06-TX State Cert. No.: ph (281) 545-8930 fax: **Date Reported:** 5/6/2008

This Report Contains A Total Of 18 Pages

Excluding This Page, Chain Of Custody

And

Any Attachments

5/8/2008

Date



#### HOUSTON LABORATORY 8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

#### Case Narrative for: Calpine Op Services, Inc.

#### Certificate of Analysis Number:

#### 08041737

Report To: **Project Name: Brazos Valley** Richmond, TX 77469 Site: Calpine Op Services, Inc. Eddie Panganiban Site Address: 3440 Lockwood Rd PO Number: BRZOM-MX20031179 Richmond State: Texas ΤX 77469-T104704205-06-TX State Cert. No.: ph (281) 545-8930 fax: Date Reported: 5/6/2008

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report (" mg/kg-dry " or " ug/kg-dry").

Matrix spike (MS) and matrix spike duplicate (MSD) samples are chosen and tested at random from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. Since the MS and MSD are chosen at random from an analytical batch, the sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The Laboratory Control Sample (LCS) and the Method Blank (MB) are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

For TCLP Metals analysis by SW846 Method 1311/6010B, your samples "Liquid Black Powder Waste (TOP)" and "Liquid Black Powder Waste (BOTTOM)" were reported with Lead and/or Cadmium as nondetect with elevated sample quantitation limits due to the matrix interference from Iron, a non target element.

Your sample ID "Liquid Black Powder Waste (TOP)" (SPL ID: 08041737-01) was randomly selected for use in SPL's quality control program for the TCLP Metals analysis by SW846 Method 1311/6010B. The MS and MSD recoveries were outside of the advisable quality control limits for Lead (Batch ID: 78430A) due to dilutions in the sample because of matrix interference. A Post Digestion Spike (PDS) and Post Digestion Spike Duplicate (PDSD) was performed and all recoveries were within quality control limits. A Laboratory Control Sample (LCS) was analyzed as a quality control check for the analytical batch and all recoveries were within acceptable limits.

Any other exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

Please do not hesitate to contact us if you have any questions or comments pertaining to this data report. Please reference the above Certificate of Analysis Number

This report shall not be reproduced except in full, without the written approval of the laboratory. The reported results are only representative of the samples submitted for testing.

SPL, Inc. is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

D'anna Stelly

08041737 Page 1 5/8/2008

D'Anna Stelly

Project Manager

Test results meet all requirements of NELAC, unless specified in the narrative.

Date





#### HOUSTON LABORATORY

8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

#### Calpine Op Services, Inc.

#### Certificate of Analysis Number:

#### 08041737

Report To:

Fax To:

Calpine Op Services, Inc.

Eddie Panganiban

3440 Lockwood Rd

Richmond

77469-

ph (281) 545-8930

fax: (281) 545-8930

Project Name:

**Brazos Valley** 

Site:

Richmond, TX 77469

Site Address:

PO Number:

BRZOM-MX20031179

State:

Texas

State Cert. No.:

T104704205-06-TX

**Date Reported:** 

5/6/2008

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
Liquid Black Powder Waste (TOP)	08041737-01	Liquid	4/28/2008 10:50:00 AM	4/28/2008 2:21:00 PM	282378	
Liquid Black Powder Waste (BOTTOM)	08041737-02	Liquid	4/28/2008 10:52:00 AM	4/28/2008 2:21:00 PM	282378	

D'anna Stelly

5/8/2008

D'Anna Stelly Project Manager

> Richard R. Reed Laboratory Director

Ted Yen Quality Assurance Officer

> 08041737 Page 2 5/8/2008 5:51:06 PM



Client Sample ID: Liquid Black Powder Waste (TOP) Collected: 04/28/2008 10:50 08041737-01 SPL Sample ID: Site: Richmond, TX 77469 Result QUAL Dil. Factor Date Analyzed Analyses/Method Rep.Llmit MCL Analyst Seq.# CORROSIVITY Units: pH Units MCL SW9040C 5.81 0.1 Corrosivity 04/28/08 18:15 PAC 4403905 **IGNITABILITY** MCL SW1010A Units: °F Ignitability >212 20 04/30/08 12:00 4406990 REACTIVE CYANIDE-WATER MCL SW7.3.3.2 Units: mg/L Reactive Cyanide ND 0.5 05/03/08 14:00 ESK 4415562 **REACTIVE SULFIDE - AQUEOUS** MCL SW7.3.4.2 Units: mg/L Reactive Sulfide ND 10 05/03/08 14:00 ESK 4415337 **TCLP BTEX COMPOUNDS** MCL SW8021B Units: ug/L 3400 >MCL 100 100 05/03/08 0:53 4413614 ILS Surr: 1,4-Diffuorobenzene 101 39-163 100 05/03/08 0:53 4413614 Surr: 4-Bromofluorobenzene 101 57-157 100 05/03/08 0:53 ILS 4413614 Leach Method Leachate Date Leach Initials SW1311 04/29/2008 GF **TCLP MERCURY** MCL SW7470A Units: mg/L Mercury 0.000957 0.0002 05/02/08 19:44 CMC 4413214 0.2 Prep Initials Prep Factor Leach Method Leach Initials Prep Method Prep Date Leachate Date SW7470A SW1311 04/29/2008 05/02/2008 10:30 CMC 1.00 GF **TCLP METALS BY METHOD 6010B** MCL SW6010B Units: mg/L 0.379 0.2 05/04/08 20:27 EG 4417350 Arsenic 5 2 ND 100 05/04/08 20:27 EG 4417350 2 Barium ND 0.01 05/04/08 20:27 EG 4417350 Cadmium 2 Ť Chromium 0.194 0.02 5 2 05/04/08 20:27 EG 4417350 Lead ND 5 5 100 05/05/08 14:37 EG 4417562 Selenium ND 0.2 2 05/04/08 20:27 EG 4417350 0.0719 0.02 05/04/08 20:27 4417350 Silver 2 Prep Method Prep Date Prep Initials | Prep Factor | Leach Method Leachate Date Leach Initials

SW3010A

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

DDW

1.00

\* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

05/02/2008 11:10

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

04/29/2008

GF

MI - Matrix Interference

SW1311

08041737 Page 3 5/8/2008 5:51:17 PM



Client Sample ID; Liquid Black Powder Waste (BOTTO Collected: 04/28/2008 10:52 SPL Sample ID: 08041737-02

Client Sample ID:Cl	quid Black Powder vva	sie (DOTTC	Conected	: 04/20/2000	5 10.5	2 SPL Sam	pie iu:	00041/3/-02
			Site: R	ichmond, 1	X 774	69		
Analyses/Method	Result	QUAL	Rep.Limit	MCL D	il. Fact	or Date Analy	zed An	alyst Seq. #
CORROSIVITY				MCL		SW9040C	Units:	pH Units
Corrosivity	5.95		0,1		1	04/28/08 1	8:15 PAC	440390
IGNITABILITY				MCL		SW1010A	Units:	°F
Ignitability	>212		20	)	1	04/30/08 1	2:00 GF	440699
REACTIVE CYANIDI	E-WATER			MCL		SW7.3.3.2	Units:	mg/L
Reactive Cyanide	ND		0.6	<u> </u>	1	05/03/08 14	4:00 ESK	441556
REACTIVE SULFIDE	- AQUEOUS			MCL		SW7.3.4.2	Units:	mg/L
Reactive Sulfide	ND		10	)	1	05/03/08 14		
TCLP BTEX COMPO	DUNDS			MCL		SW8021B	Units:	ua/L
Benzene	4000	>MCL	100	500	100	05/03/08		
Surr: 1,4-Difluorober	nzene 101		% 39-163		100	05/03/08	1:21 ILS	441361
Surr: 4-Bromofluoro	benzene 100		% 57-157	,	100	05/03/08	1:21 ILS	441361
				Leach Metho		Leachate Date		Leach Initials
				SW1311		04/29/2008		GF
TCLP MERCURY				MCL		SW7470A	Units:	ma/L
Mercury	0.00216		0.0002		1	05/02/08 19		
Deen Maihad	Prep Date	Prep Initials	Prep Factor	Leach Metho		Leachate Date		Leach Initials
Prep Method SW7470A	05/02/2008 10:30	CMC	1.00	SW1311	<u>u</u>	04/29/2008		GF
time in the second								
TCLP METALS BY N	0.414		0,2	MCL 5	2	SW6010B 05/04/08 21	Units:	111g/L 441735
Barium	ND		1		2	05/04/08 21		441735
Cadmium	ND		0.05		10	05/05/08 15		441757
Chromium	0.225		0.02	5	2	05/04/08 21	1:02 EG	441735
Lead	ND		5	5	100	05/05/08 15	5:17 EG	441757
Selenium	ND	······································	0.2	1	2	05/04/08 21	:02 EG	441735
Silver	0.0757		0.02	5	2	05/04/08 21	:02 EG	441735
Prep Method	Prep Date	Prep Initials	Prep Factor	Leach Metho		Leachate Date	1	Leach Initials
SW3010A	05/02/2008 11:10	DDW	1.00	SW1311	<u>**</u>	04/29/2008	·····	GF
OVVOUTUR	00/02/2006 11:10	IDDAA	11.00	0441011		V-1/28/2000		

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

\* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

Mi - Matrix Interference

08041737 Page 4 5/8/2008 5:51:17 PM

## **Quality Control Documentation**

08041737 Page 5 5/8/2008 5:51:18 PM



#### Calpine Op Services, Inc.

**Brazos Valley** 

Analysis:

Analysis Date:

**TCLP BTEX Compounds** 

Method:

SW8021B

05/02/2008 12:51

WorkOrder:

Samples in Analytical Batch:

08041737

Lab Batch ID:

R236096

**Method Blank** 

RunID: VARE\_080502B-4413605

Units: Analyst: ug/L ILS

Lab Sample ID

Cilent Sample ID

Upper Limit 130

163

157

39

57

08041737-01A 08041737-02A Liquid Black Powder Waste Liquid Black Powder Waste

Analyte	Resuit	Rep Limit
Велиеле	ND	_1.0
Surr: 1,4-Difluorobenzene	99.7	39-163
Surr. 4-Bromofluorobenzene	98.9	57-157

Leachate Blank

RunID:

VARE\_080502B-4413613

Units:

ug/L

Analysis Date:

05/03/2008 0:24

Analyst:

ILS

Leach Date:

04/29/2008 0:00

Leach By: GF Method SW1311

Analyte	Result	Rep Limit
Benzene	ND	1.0
Surr: 1,4-Difluorobenzene	93.3	39-163
Surr 4-Bromofivorobenzene	95.2	57-157

#### Laboratory Control Sample (LCS)

100

100

RuniD:

Analysis Date:

VARE\_080502B-4413604

05/02/2008 11:54

Units:

98.6

101

98.6

101

Analyst:

ug/L ILS

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	
Benzene	20.0	21.1	106	70	_

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)


Sample Spiked:

Surr: 1,4-Difluorobenzene

Surr: 4-Bromofluorobenzene

08050075-01

RunID:

VARE\_080502B-4413609

Units:

ug/L.

Analysis Date:

05/02/2008 18:14

Analyst: ILS

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

\* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

08041737 Page 6

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

5/8/2008 5:51:19 PM



HOUSTON LABORATORY 8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

### Calpine Op Services, Inc. Brazos Valley

Analysis:

**TCLP BTEX Compounds** 

Method:

SW8021B

WorkOrder:

08041737

Lab Batch ID:

R236096

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Benzene	ND	20	21.8	109	20	21.9	109	0.323	26	40	165
Surr: 1,4-Difluorobenzene	ND	100	98.8	98.8	100	98.7	98.7	0.0641	30	39	163
Surr: 4-Bromofluorobenzene	ND	100	102	102	100	102	102	0.622	30	57	157

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL

E - Estimated Value exceeds calibration curve

d PQL \* - Recovery Outside Advisable QC Limits

MI - Matrix Interference

D - Recovery Unreportable due to Dilution

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

08041737 Page 7

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

5/8/2008 5:51:19 PM



**HOUSTON LABORATORY** 8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

#### Calpine Op Services, Inc. **Brazos Vailey**

Analysis:

**TCLP Metals by Method 6010B** 

Method:

SW6010B

WorkOrder:

08041737

Lab Batch ID:

78430

Method Blank

Samples in Analytical Batch:

RunID: TJA\_080504A-4417346

mg/L

EG

Lab Sample ID 08041737-01A

Client Sample ID

Analysis Date: Preparation Date: 05/04/2008 20:14

Analyst:

Units:

Liquid Black Powder Waste

05/02/2008 11:10

DD Prep By:

Method SW3010A

08041737-02A

Liquid Black Powder Waste

Analyte	Result	Rep Limit
Arsenic	ND	0,1
Barium	ND	0.5
Cadmium	NO	0.005
Chromium	ND	0.01
Selenium	ND	0.1
Silver	ND	0.01

#### Leachate Blank

RuniD:

TJA\_080504A-4417347

Units: mg/L

Analysis Date:

05/04/2008 20:18

Analyst: EG

Preparation Date:

05/02/2008 11:10

Prep By: DD

Method SW3010A

Leach Date:

Silver

04/29/2008 0:00

Leach By: GF

Method SW1311

Analyte	Result	Rep Limit
Arsenic	ND	0.2
Barium	ND	1
Cadmium	ND	0.01
Chromium	ND	0.02
Selenium	ND	0.2

#### Laboratory Control Sample (LCS)

RuniD:

TJA\_080504A-4417349

Units: mg/L

Analysis Date: Preparation Date: 05/04/2008 20:23 05/02/2008 11:10 Analyst: EG Prep By:

Method SW3010A

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Arsenic	2.000	1.794	89.70	80	120
Barlum	2.000	1.917	95.84	80	120
Cadmium	2.000	1.870	93.48	80	120
Chromium	2.000	1.863	93.14	80	120
Selenium	2.000	1.840	92.00	80	120
Silver	2.000	1.974	98.71	80	120

#### Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

\* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

08041737 Page 8

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



08041737

78430

#### Calpine Op Services, Inc. **Brazos Valley**

Analysis:

TCLP Metals by Method 6010B

Method:

SW6010B

Sample Spiked:

Analysis Date:

Preparation Date:

RunlD:

08041737-01

TJA\_080504A-4417352 05/04/2008 20:32

05/02/2008 11:10

Units: mg/L Analyst: EG

Prep By: DD Method SW3010A

WorkOrder:

Lab Batch ID:

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Arsenic	0.3791	2	2.372	99.62	2	2.354	98.74	0.7504	20	75	125
Barlum	ND	2	1,939	95.79	2	1.950	96.32	0.5436	20	75	125
Cadmium	ND	2	1.898	94.90	2	1.858	92.89	2.145	20	75	125
Chromium	0.1945	2	2.114	95.98	2	2.058	93.18	2.679	20	75	125
Selenium	ND	2	2.430	112.6	2	2.375	109.9	2.259	20	75	125
Silver	0.07193	2	1.923	92.55	2	1.938	93.28	0.7574	20	75	125

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve MI - Matrix Interference

D - Recovery Unreportable due to Dilution \* - Recovery Outside Advisable QC Limits

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

08041737 Page 9

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



#### Calpine Op Services, Inc. **Brazos Valley**

Analysis:

**TCLP Metals by Method 6010B** 

Method:

SW6010B

WorkOrder:

Samples in Analytical Batch:

08041737

Lab Batch ID:

78430A

**Method Blank** 

RunID: TJA\_080505A-4417560

Units:

mg/L

Lab Sample ID 08041737-01A

Client Sample ID

Analysis Date: Preparation Date:

05/05/2008 14:29 05/02/2008 11:10

Analyst: Prep By: DD

EG

08041737-02A Method SW3010A

Liquid Black Powder Waste

Leach Date:

04/29/2008 0:00

Leach By: GF

Method SW1311

Liquid Black Powder Waste

Analy	te	Result	Rep Limit
Cadmium		ND	0.01
Lead		ND	0.1

#### Leachate Blank

RunID:

TJA\_080505A-4417560

Units:

mg/L EG

Analysis Date: Preparation Date:

Leach Date:

05/05/2008 14:29

Analyst:

05/02/2008 11:10

DD Prep By:

Method SW3010A Method SW1311

:	04/29/2008 0:00 Lea	Leach By: GF M				
	Analyte	Result	Rep Limit			
	Cadmium	ND	0.01			
	Lead	ND	0.1			

#### Laboratory Control Sample (LCS)

RunID:

TJA\_080505A-4417561

Units: mg/L

Analysis Date: Preparation Date:

05/05/2008 14:33 05/02/2008 11:10

EG Analyst: Prep By:

Method SW3010A

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Cadmium	2.000	1.925	96.23	80	120
Lead	2.000	1.901	95.04	80	120

#### Post Digestion Spike (PDS) / Post Digestion Spike Duplicate (PDSD)

Sample Spiked:

08041737-01

RuniD:

TJA\_080505A-4417566

Units:

mg/L

Analysis Date:

05/05/2008 14:55

Analyst:

Analyte	Sample Result	PDS Spike Added	PDS Result	PDS % Recovery	PDSD Spike Added	PDSD Result	PDSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Cadmium	ND	100	99.98	99.87	100	99.58	99.47	0.4028	20	75	125
Lead	ND	100	100.3	100.3	100	103.3	103.3	2.991	20	75	125

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

\* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

08041737 Page 10

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



### Calpine Op Services, Inc. Brazos Valley

Analysis:

TCLP Metals by Method 6010B

Method: S\

SW6010B

WorkOrder:

08041737

Lab Batch ID:

78430A

#### Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

Analysis Date:

Preparation Date:

RunID:

08041737-01

TJA\_080505A-4417563 05/05/2008 14:42

05/02/2008 11:10

Units:

mg/L EG

Analyst:

Prep By: DD Method SW3010A

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Cadmium	ND	2	1.674	78.13	2	1.550	71.96 *	7.653	20	75	125
Lead	ND	2	D	D	2	D	D	D	20	75	125

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

\* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

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QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

EPAHO048002740



**HOUSTON LABORATORY** 8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

#### Calpine Op Services, Inc. **Brazos Valley**

Analysis:

**TCLP Mercury** 

Method:

SW7470A

WorkOrder:

08041737

Lab Batch ID:

78444

Method Blank

Units: mg/L

Lab Sample ID

Client Sample ID

Analysis Date:

RuniD: HGLC\_080502A-4413211

CMC

08041737-01A

Samples in Analytical Batch:

Liquid Black Powder Waste

Preparation Date:

05/02/2008 19:36 05/02/2008 10:30

Analyst: Prep By: CMC Method SW7470A

08041737-02A

Liquid Black Powder Waste

Analyte

Mercury

Result Rep Limit

ND

#### Leachate Blank

RunID:

HGLC\_080502A-4413212

Units: mg/L

Analysis Date:

05/02/2008 19:39

CMC Analyst:

Preparation Date:

05/02/2008 10:30

Prep By: CMC Method SW7470A

Leach Date:

04/29/2008 0:00

Leach By: GF

Method SW1311

Analyte Mercury

Result Rep Limit 0.0002

0.0002

#### Laboratory Control Sample (LCS)

RuniD:

Analysis Date:

HGLC\_080502A-4413213

05/02/2008 19:41

mg/L Analyst: CMC

Preparation Date: 05/02/2008 10:30 Prep By: CMC Method SW7470A

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Mercury	0.002000	0.001916	95.80	80	120

#### Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

08041737-01

RunID:

HGLC\_080502A-4413215

Units:

mg/L

Analysis Date: Preparation Date: 05/02/2008 19:46

Analyst: CMC

05/02/2008 10:30

Prep By: CMC Method SW7470A

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Mercury	0.0009570	0.002	0.002911	97.69	0.002	0.002769	90.59	4.998	20	75	125

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

\* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply

TNTC - Too numerous to count

08041737 Page 12

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



#### Calpine Op Services, Inc. **Brazos Valley**

Analysis:

Corrosivity

Method:

SW9040C

WorkOrder:

08041737

Lab Batch ID:

R235530

Samples in Analytical Batch:

Lab Sample ID

Client Sample ID

08041737-01A

Liquid Black Powder Waste

08041737-02A

Liquid Black Powder Waste

#### Laboratory Control Sample (LCS)

RunID;

WET\_080428ZD-4403904 Units:

pH Units

Analysis Date:

04/28/2008 18:15

PAC Analyst:

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Corrosivity	7.000	7.020	100.3	98	102

#### Sample Duplicate

Original Sample:

08041737-01

RuniD:

WET\_080428ZD-4403905 Units:

pH Units

Analysis Date:

04/28/2008 18:15

Analyst: PAC

Analyte	Sample Result	DUP Result	RPD	RPD Limit
Corrosivity	5.81	5.81	0	20

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

\* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

08041737 Page 13

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



#### Calpine Op Services, Inc. **Brazos Valley**

Analysis: Method:

Ignitability

SW1010A

WorkOrder:

08041737

Lab Batch ID:

R235679

Samples in Analytical Batch:

Lab Sample ID

Client Sample ID

08041737-01A 08041737-02A Liquid Black Powder Waste

Liquid Black Powder Waste

Laboratory Control Sample (LCS)

RunID:

Analysis Date:

WET\_080430A-4406988

Units:

٩F

GF 04/30/2008 12:00 Analyst:

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit	
Ignitability	81.00	81.12	100.1	97.5	102.5	

#### Sample Duplicate

Original Sample:

08041761-01

WET\_080430A-4406992

Units: Analyst: °F

212

0

20

RuniD: Analysis Date:

Ignitability

04/30/2008 12:00

Analyte	Sample	DUP	RPD	RPD
•	Result	Result		Limit

212

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

BN - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

\* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

08041737 Page 14 5/8/2008 5:51:20 PM

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



#### Calpine Op Services, Inc. **Brazos Valley**

Analysis:

Reactive Sulfide - Aqueous

Method:

SW7.3.4.2

05/03/2008 14:00

WorkOrder:

08041737

Lab Batch ID:

R236193

Method Blank

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

RuniD: WET\_080503K-4415332

Units: mg/L Analyst:

**ESK** 

08041737-01A

Liquid Black Powder Waste

08041737-02A

Liquid Black Powder Waste

Analyte	Result	Rep Limit
Reactive Sulfide	ND	10

#### Laboratory Control Sample (LCS)

RuniD:

WET\_080503K-4415336

Units:

mg/L

Analysis Date:

05/03/2008 14:00

ESK Analyst:

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Reactive Sulfide	100.0	95.60	95.60	85	115

#### Sample Duplicate

Original Sample:

08041737-01

RunID: Analysis Date: WET\_080503K-4415337

05/03/2008 14:00

Units:

Analyst:

mg/L **ESK** 

Analyte	Sample Result	DUP Result	RPD	RPD Limit
Reactive Sulfide	ND	ND	0	20

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve \* - Recovery Outside Advisable QC Limits

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

08041737 Page 15

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



**HOUSTON LABORATORY** 8880 INTERCHANGE DRIVE HOUSTON, TX 77054

(713) 660-0901

#### Calpine Op Services, inc. **Brazos Valley**

Analysis:

Reactive Cyanide-Water

Method:

RunID:

Analysis Date:

SW7.3.3.2

05/03/2008 14:00

WorkOrder:

08041737

Lab Batch ID:

R236198

Method Blank

WET\_080503L-4415558

Units: Analyst: mg/L **ESK** 

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

08041737-01A 08041737-02A

Liquid Black Powder Waste

Liquid Black Powder Waste

***************************************			
Analyte	)	Result	Rep Limit
Reactive Cyanide		ND	0.50

#### Laboratory Control Sample (LCS)

Units:

Analyst:

RuniD:

Analysis Date:

WET\_080503L-4415559

mg/L

ESK

Analyte	e Spike Resi		Percent	Lower	Upper
	Added		Recovery	Limit	Limit
Reactive Cyanide	2.000	0.4160	20.80	5	50

#### Sample Duplicate

Original Sample:

08041737-01

05/03/2008 14:00

RunID: Analysis Date: WET\_080503L-4415562 05/03/2008 14:00

Units:

Analyst:

mg/L **ESK** 

Analyte	Sample Result	DUP Result	RPD	RPD Limit
Reactive Cyanide	ND	ND	0	20

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

\* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

08041737 Page 16

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

## Sample Receipt Checklist And Chain of Custody

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#### HOUSTON LABORATORY

8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

#### Sample Receipt Checklist

Workorder:	08041737		Received By:	RE	
Date and Time Received:	4/28/2008 2:21:00 PM		Carrier name:	SPL	
Temperature:	3.0°C		Chilled by:	Water Ice	
1. Shipping container/co	oler In good condition?	Yes 🗹	No 🗆	Not Present	
2. Custody seals intact o	n shippping container/cooler?	Yes 🗹	No 🗆	Not Present	
3. Custody seals intact o	n sample bottles?	Yes 🗌	No 🗆	Not Present	<b>V</b>
4. Chain of custody preso	ent?	Yes 🗹	No 🗆		
5. Chain of custody signed when relinquished and received?		Yes 🗹	No 🗆		
6. Chain of custody agree	3. Chain of custody agrees with sample labels?		No 🗆		
Samples in proper container/bottle?		Yes 🗹	№ □		
8. Sample containers inta	Sample containers intact?		No 🗆		
9. Sufficient sample volu	me for indicated test?	Yes 🔽	No 🗆		
10. All samples received w	îthin holding time?	Yes 🗹	No 🗆		
11. Container/Temp Blank	temperature in compliance?	Yes 🗹	No 🗆		
12. Water - VOA vials have	zero headspace?	Yes 🗌	No□ VOA	Vials Not Present	<b>V</b>
13. Water - Preservation cl	necked upon receipt (except VOA*)?	Yes 🗆	No 🗆	Not Applicable	V
*VOA Preservation Che	cked After Sample Analysis				
SPL Representative	):	Contact Date & 1	Time:		
Client Name Contacted		,			
Non Conformance Issues:					
Client Instructions:					
. L			With the second of the second		

08041737 Page 18 5/8/2008 5:51:21 PM

SPL, Inc.								SPL Workorder No.			1	282378						
	. A	nalysis Re			•		ody Re	cord			0	09	17	3	/	page_	of_	
Client Name: CALPINE, B	PAZOS V	ALLEY E	NER	GY	matrix	3	size	pres.		[ ]		R	eques	ted A	naly			
Address: 4330 LOCKWOO	PP PD.	RICHMONI	וד, כ	۲. ˈl	O=oil	A=amber glass V=vial X=other	rial er				- h							
Phone/Fax: 281 - 545-89		-	774	69		r gel	40=vial		82		22							ł
Client Contact: EDDIE P.	Email: C	pangan ibe	una		S=soil X=other	nbe	1=1 liter 4=4oz 40=via 8=8oz 16=16oz X=other	2=HNO3 X=other	Number of Containers		LIP-BENZENE							I
Project Name/No.:		Calpin	e.co	M	S=soil X=othe	=ai via	40z 50z		omt		13E				Ì			I
Site Name: BRAZOS VALLEY					S	¥	4 <del>-</del>		f.C.	2	' \( \)			•		•		
Site Location: RICHMONI	), TEX	AS			ater udg	stic	ler 16	100	er o	$\mathcal{L}_{\mathcal{L}_{\mathcal{L}_{\mathcal{L}_{\mathcal{L}}}}}$	1							
Invoice To: CALPINE, BR	AZOS VALI	EAH: ENER	267		W=water SL=sludge	P=plastic G=glass	1=1 liter 8=80z 16	1=HC1 3=H2SO4	l di	1 K	7.7							
SAMPLE ID	DATE	TIME	comp	grab	SI	4 5	& II II	3=	ž		1							
LIQUID BLACK POWDER	4/28/08	10:50M		~	W	G	1	X	1	V	~							
WASTE (TOP)																		
		· · · · · · · · · · · · · · · · · · ·						<u> </u>	,			· · · · · · · · · · · · · · · · · · ·				ļ		
	11-1-	14. CT (4)			7		1		1	1.7					<u> </u>			
LIQUID BLACK POODER	24/28/08	10.34		~	W	G	7	R		V					ļ		ļ!	ļ
WASTE (BOTTOM)																		
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	.,					·			<b> </b>	1		***************************************			·			
					· <del></del>													
Client/Consultant Remarks:	<u> </u>				Laborat	ory rema	rks:	<u> </u>	1	<u> </u>	<u></u>		<u> </u>		Intact	?	J Y	TN
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	Special Pena	rting Requires	nente	Reen	te	x D E			Special	l Defect	on Limit	e (ener	ifv\·		Temp:		iew (in	
Requested TAT									Dec.a.	. 20000	OH 2011	a (alber						/k
Contract 72hr		Level 3 QC		vel 4 Q	CL TX	TRRP			ļ		10.10					1	<u>w</u>	10
24hr Standard	EDD						52 M		< /i.	110	Mé	M	/_					
48hr 🔲	3. Relinguished by:				date	361	time 4. Received by:											
Other	5. Relinquish	ed by	— <i> </i> //	·			date	18/08	time	21	6. R/ce	ved k	Kabora (	Gry:				
3880 Interchang	e Drive				500 Am	bassad			kway		- /		Ö	459 I	Iughes	Drive	***************************************	
Houston, TX 77054 (71						A 7058						Trav	erse Ci	ity, MI	49686	(231)	947-57	דדו

Additional Tast for ful gas power



HOUSTON LABORATORY 8880 INTERCHANGE DRIVE HOUSTON, TX 77054 (713) 660-0901

#### Calpine Op Services, Inc.

#### Certificate of Analysis Number:

#### 07120064

Report To:

Calpine Op Services, Inc.

Eddie Panganiban 3440 Lockwood Rd

Richmond

TX 77469-

ph: (281) 545-8930

fax:

Project Name:

Calpine, BE

Site:

Richmond, TX 77469

Site Address:

PO Number:

State:

Texas

State Cert. No.:

T104704205-06-TX

Date Reported: 12/6/2007

This Report Contains A Total Of 7 Pages

Excluding This Page, Chain Of Custody

And

Any Attachments

12/6/2007

Date



## Case Narrative for: Calpine Op Services, Inc.

#### Certificate of Analysis Number:

#### 07120064

Report To:

Calpine Op Services, Inc.

Eddie Panganiban 3440 Lockwood Rd

Richmond

TX

77469-

ph: (281) 545-8930

fax:

**Project Name:** 

Site:

Richmond, TX 77469

Calpine, BE

Site Address:

PO Number:

State:

Texas

State Cert. No.:

T104704205-06-TX

Date Reported: 12/6

12/6/2007

This report contains additional analysis for the samples originally received on November 11, 2007 and assigned to Certificate of Analysis Number 07120064. Per your request on November 29, 2007 via phone conversation, the sample was analyzed for Density analysis.

Matrix spike (MS) and matrix spike duplicate (MSD) samples are chosen and tested at random from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. Since the MS and MSD are chosen at random from an analytical batch, the sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The Laboratory Control Sample (LCS) and the Method Blank (MB) are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

Any other exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

Please do not hesitate to contact us if you have any questions or comments pertaining to this data report. Please reference the above Certificate of Analysis Number.

This report shall not be reproduced except in full, without the written approval of the laboratory. The reported results are only representative of the samples submitted for testing.

SPL, Inc. is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

D'anna Stelly

07120064 Page 1 12/6/2007

Date

D'Anna Stelly

Project Manager

Test results meet all requirements of NELAC, unless specified in the narrative.



#### Calpine Op Services, Inc.

#### Certificate of Analysis Number:

#### 07120064

Report To:

Fax To:

Calpine Op Services, Inc.

Eddie Panganiban

3440 Lockwood Rd

Richmond

ΤX

77469-

ph: (281) 545-8930

fax: (281) 545-8930

Project Name:

Calpine, BE

Site:

Richmond, TX 77469

Site Address:

Site Address

PO Number:

State:

Texas

State Cert. No.:

T104704205-06-TX

Date Reported:

12/6/2007

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COCID	HOLD
Fuel Gas Powder	07120064-01	Solid	11/7/2007 2:30:00 PM	12/3/2007 5:00:00 PM	273778	

D'anna Stelly

12/6/2007

Date

D'Anna Stelly

Project Manager

Richard R. Reed Laboratory Director

Ted Yen

Quality Assurance Officer

07120064 Page 2 12/6/2007 10:30:20 AM

•



Client Sample ID Fuel Gas I	Powder	Collected:	1/07/2007	7 14:30	SPL San	iple ID	: 0712	0064-01
		Site: Ric	hmond, T	X 77469	)			
Analyses/Method	Result QUA	L Rep.Limit	D	il. Factor	Date Anal	yzed	Analyst	Seq.#
DENSITY @ 25 C			MCL	ASTM	D-1429	Unit	s: g/mL	
Density	1.076	0		1	12/04/07	10:30 F	AC	4167088

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

- \* Surrogate Recovery Outside Advisable QC Limits
- J Estimated Value between MDL and PQL
- E Estimated Value exceeds calibration curve

TNTC - Too numerous to count

- >MCL Result Over Maximum Contamination Limit(MCL)
- D Surrogate Recovery Unreportable due to Dilution
- MI Matrix Interference

07120064 Page 3 12/6/2007 10:30:30 AM

## **Quality Control Documentation**

07120064 Page 4 12/6/2007 10:30:31 AM



#### Calpine Op Services, Inc.

Calpine, BE

Analysis: Method:

Density @ 25 C **ASTM D-1429** 

WorkOrder:

07120064

Lab Batch ID:

R221091

Samples in Analytical Batch:

Lab Sample ID

Client Sample ID

07120064-01A

Fuel Gas Powder

#### Sample Duplicate

Original Sample:

07120064-01

WET\_071204A-4167088

Units:

g/mL

Analysis Date:

RunID:

12/04/2007 10:30

Analyst: PAC

Analyto	Sample Result	DUP Result	RPD	RPD Limit
Density	1.076	1.0765	0.009290	20

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

\* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

07120064 Page 5

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

12/6/2007 10:30:32 AM

# Sample Receipt Checklist And Chain of Custody

07120064 Page 6 12/6/2007 10:30:34 AM



#### Sample Receipt Checklist

Workorder:	07120064		Received By:	RE		
Date and Time Receive	ed: 12/3/2007 5:00:00 PM		Carrier name:	SPL		
Temperature:	3.0°C		Chilled by:	Water Ice		
1. Shipping containe	or/cooler in good condition?	Yes 🗹	No 🗌	Not Present		
2. Custody seals inta	act on shippping container/cooler?	Yes 🗌	No 🗆	Not Present	V	
3. Custody seals inta	act on sample bottles?	Yes 🗌	No 🗌	Not Present	V	
4. Chain of custody p	present?	Yes 🗸	No 🗆			
5. Chain of custody s	signed when relinquished and received?	Yes 🗹	No 🗌			
6. Chain of custody a	agrees with sample labels?	Yes 🗹	No 🗆			
7. Samples in proper	container/bottle?	Yes 🗹	No 🗆			
8. Sample containers	intact?	Yes 🗸	No 🗆			
9. Sufficient sample	volume for indicated test?	Yes 🗸	No 🗀			
10. All samples receive	ed within holding time?	Yes 🗹	No 🗆			
11. Container/Temp Bl	lank temperature In compliance?	Yes 🗹	No 🗌			
12. Water - VOA vials i	nave zero headspace?	Yes 🗌	No 🗌 VOA V	Vials Not Present	Ø	
13. Water - Preservation	on checked upon receipt (except VOA*)?	Yes 🗌	No 🗔	Not Applicable	V	
*VOA Preservation	Checked After Sample Analysis			and the first state of the stat	·	
SPL Represent	ative:	Contact Date &	Time:			
Client Name Conta	cted:					
Non Conformance Issues:						
Client Instructions:		Planta de la companya del companya de la companya del companya de la companya de				
•						

07120064 Page 7 12/6/2007 10:30:35 AM



#### Calpine Op Services, Inc.

#### Certificate of Analysis Number:

#### 07110506

Report To: **Project Name:** Calpine, BE Site: Richmond, TX 77469 Calpine Op Services, Inc. Eddie Panganiban Site Address: 3440 Lockwood Rd PO Number: BRZOM-MX20015676 Richmond State: 77469-State Cert. No.: T104704205-06-TX ph: (281) 545-8930 **Date Reported:** 11/21/2007

This Report Contains A Total Of 25 Pages

Excluding This Page, Chain Of Custody

And

Any Attachments

11/21/2007

Date

Test results meet all requirements of NELAC, unless specified in the narrative.



## Case Narrative for: Calpine Op Services, Inc.

#### Certificate of Analysis Number:

#### 07110506

Report To: **Project Name:** Calpine, BE Richmond, TX 77469 Calpine Op Services, Inc. **Eddie Panganiban** Site Address: 3440 Lockwood Rd PO Number: BRZOM-MX20015676 Richmond State: Texas TX 77469-State Cert. No.: T104704205-06-TX ph (281) 545-8930 11/21/2007 **Date Reported:** 

Matrix spike (MS) and matrix spike duplicate (MSD) samples are chosen and tested at random from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. Since the MS and MSD are chosen at random from an analytical batch, the sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The Laboratory Control Sample (LCS) and the Method Blank (MB) are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

For Total Semivolatile Organics analysis by SW846 Method 8270C, your sample "Fuel Gas Powder" was reported with several compounds as nondetect with elevated sample quantitation limits due to the viscosity of the sample extract. However, the lowest possible dilution was performed.

Any other exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

Please do not hesitate to contact us if you have any questions or comments pertaining to this data report. Please reference the above Certificate of Analysis Number.

This report shall not be reproduced except in full, without the written approval of the laboratory. The reported results are only representative of the samples submitted for testing.

SPL, inc. is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

D'anna Stelly

07110506 Page 1 11/21/2007

D'Anna Stelly Project Manager

Test results meet all requirements of NELAC, unless specified in the narrative.

Date



#### Calpine Op Services, Inc.

#### Certificate of Analysis Number:

#### 07110506

Report To:

Fax To:

Calpine Op Services, Inc.

Eddle Panganiban

3440 Lockwood Rd

Richmond

1X

77469-

ph: (281) 545-8930

fax: (281) 545-8930

PO Number:

**Project Name:** 

Site Address:

r:

BRZOM-MX20015676

Richmond, TX 77469

State:

Site:

Texas

State Cert. No.:

T104704205-06-TX

Date Reported:

11/21/2007

Calpine, BE

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COCID	HOLD
Fuel Gas Powder	07110506-01	Solid	11/7/2007 2:30:00 PM	11/9/2007 1:00:00 PM	273778	

D'anna Stelly

11/21/2007

Date

D'Anna Stelly Project Manager

> Richard R. Reed Laboratory Director

Ted Yen
Quality Assurance Officer

07110506 Page 2 11/21/2007 9:29:02 AM



Client Sample ID Fue	el Gas Powder		Collected	: 11/07/20	07 14:30	SPL San	nple ID: 071	0506-01
			Site: F	Richmond,	TX 77469	)		
Analyses/Method	Resul	t QUAL	Rep.Lim	it	Dil. Factor	Date Ana	lyzed Analyst	Seq. #
CORROSIVITY	and the second of the second s			MCL	. \$\	W9045D	Units: pH U	nits
Corrosivity	5.96		0.	1	1	11/12/07	15:45 M_V	412998
IGNITABILITY MODIF	TED OPEN CUP			MCL	. ASTM	D92-01	Units: °F	
Ignitability	>212		21	0	1	11/10/07	15:00 GF	4126887
MERCURY, TOTAL						N7471A	Units: mg/k	
Mercury	459		31	0	1000	11/13/07	13:15 EMB	4132146
Prep Method	Prep Date	Prep Initia	ls Prep Factor	7				
SW7471A	11/13/2007 9:00	ЕМВ	1.00	1				
METALS BY METHO	O 6010B, TOTAL			MCL	. S\	V6010B	Units: mg/k	
Arsenic	139	read on the mercenia and their saving dates. (4) , etc. (	50	)	5	11/20/07		4145976
Barium	83.4		2.5	5	5	11/20/07	3:24 EG	4145976
Cadmium	ND		2.5	5	5	11/20/07	'3:24 EG	4145978
Chromium	102			5	5	11/20/07	3:24 EG	4145976
Iron	295000		40	)	20	11/20/07	3:33 EG	4145977
Lead	ND		25	5	5	11/20/07	3:24 EG	4145976
Selenium	ND		50	)	5	11/20/07	3:24 EG	4145976
Silver	15.4			5	5	11/20/07	3:24 EG	4145976
Prep Method	Prep Date	Prep Initial	s Prep Factor					
SW3050B	11/13/2007 6:55	F_I	1.00	]				
REACTIVE CYANIDE-	SOLID	www.compression.com		MCL	SV	V7.3.3.2	Units: mg/kg	1
Reactive Cyanide	ND		1		1	11/13/07	7:30 ESK	4131683
REACTIVE SULFIDE -	- SOLID			MCL	SV	V7.3.4.2	Units: mg/kg	
Reactive Sulfide	ND		10	)	1	11/10/07	12:00 ESK	4126735

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

\* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

07110506 Page 3 11/21/2007 9:29:18 AM



Client Sample ID Fuel Gas Powder

Collected: 11/07/2007 14:30

Richmond, TX 77469

Site:

SPL Sample ID: 07110506-01

Analyses/Method	Result QUAL	Rep.Limit	DII. Factor	Date Analyzed	Analyst	Seq. #
SEMIVOLATILE ORGANICS B	Y METHOD 8270C				nits: ug/kg	
1,2,4-Trichlorobenzene	ND	20000	10	11/15/07 21:08	GY	4138631
1,2-Dichlorobenzene	ND	20000	10	11/15/07 21:08	GY	4138631
1,2-Diphenylhydrazine	ND	20000	10	11/15/07 21:08	GY	4138631
1,3-Dichlorobenzene	ND	20000	10	11/15/07 21:08	GY	4138631
1,4-Dichlorobenzene	ND	20000	10	11/15/07 21:08	GY	4138631
2,4,5-Trichlorophenol	ND	48000	10	11/15/07 21:08	GY	4138631
2,4,6-Trichlorophenol	ND	20000	10	11/15/07 21:08	GY	4138631
2,4-Dichlorophenol	ND	20000	10	11/15/07 21:08	GY	4138631
2,4-Dimethylphenol	ND	20000	10	11/15/07 21:08	GY	4138631
2,4-Dinitrophenol	ND	48000	10	11/15/07 21:08	GY	4138631
2,4-Dinitrotoluene	ND	48000	10	11/15/07 21:08	GY	4138631
2,6-Dinitrotoluene	ND	20000	10	11/15/07 21:08	GY	4138631
2-Chloronaphthalene	ND	20000	10	11/15/07 21:08	GY	4138631
2-Chlorophenol	ND	20000	10	11/15/07 21:08	GY	4138631
2-Methylnaphthalene	32000	20000	10	11/15/07 21:08	GY	4138631
2-Nitroaniline	ND	48000	10	11/15/07 21:08	GY	4138631
2-Nitrophenal	ND	20000	10	11/15/07 21:08	GY	4138631
3,3'-Dichlorobenzidine	ND	20000	10	11/15/07 21:08	GY	4138631
3-Nitroaniline	ND	48000	10	11/15/07 21:08	GY	4138631
4,6-Dinitro-2-methylphenol	ND	48000	10	11/15/07 21:08	GY	4138631
4-Bromophenyl phenyl ether	ND	20000	10	11/15/07 21:08	GY	4138631
4-Chloro-3-methylphenol	ND	20000	10	11/15/07 21:08	GY	4138631
4-Chloroaniline	ND	20000	10	11/15/07 21:08	GY	4138631
4-Chlorophenyl phenyl ether	ND	20000	10	11/15/07 21:08	GY	4138631
4-Nitroaniline	ND	48000	10	11/15/07 21:08	GY	4138631
4-Nitrophenol	ND	48000	10	11/15/07 21:08	GY	4138631
Acenaphthene	ND	20000	10	11/15/07 21:08	GY	4138631
Acenaphthylene	ND	20000	10	11/15/07 21:08	GY	4138631
Aniline	ND	20000	10	11/15/07 21:08	GY	4138631
Anthracene	ND	20000	10	11/15/07 21:08	GY	4138631
Benz(a)anthracene	ND	20000	10	11/15/07 21:08	GY	4138631
Benzo(a)pyrene	ND	20000	10	11/15/07 21:08	GY	4138631
Benzo(b)fluoranthene	ND	20000	10	11/15/07 21:08	GY	4138631
Benzo(g,h,i)perylene	ND	20000	10	11/15/07 21:08	GY	4138631
Benzo(k)fluoranthene	ND	20000	10	11/15/07 21:08	GY	4138631
Benzoic acid	ND	96000	10	11/15/07 21:08	GY	4138631
Benzyl alcohol	ND	20000	10	11/15/07 21:08	GY	4138631
Bis(2-chloroethoxy)methane	ND	20000	10	11/15/07 21:08	GY	4138631
Bis(2-chloroethyl)ether	ND	20000	10	11/15/07 21:08	GY	4138631

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

\* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

07110506 Page 4 11/21/2007 9:29:19 AM



Client Sample ID Fuel Gas Powder Collected: 11/07/2007 14:30 SPL Sample ID: 07110506-01

			Si	te: Richm	ond, TX 77469			
Analyses/Method	Result	QUAL	R	ep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
Bis(2-chloroisopropyl)ether	ND			20000	10	11/15/07 21:08	GY	413863
Bis(2-ethylhexyl)phthalate	ND			20000	10	11/15/07 21:08	GY	413863
Butyl benzyl phthalate	ND			20000	10	11/15/07 21:08	GY	413863
Carbazole	ND			20000	10	11/15/07 21:08	GY	413863
Chrysene	ND			20000	10	11/15/07 21:08	GY	413863
Dibenz(a,h)anthracene	ND			20000	10	11/15/07 21:08	GY	413863
Dibenzofuran	ND			20000	10	11/15/07 21:08	GY	413863
Diethyl phthalate	ND			20000	10	11/15/07 21:08	GY	413863
Dimethyl phthalate	ND			20000	10	11/15/07 21:08	GY	413863
Di-n-butyl phthalate	ND			20000	10	11/15/07 21:08	GY	413863
Di-n-octyl phthalate	ND			20000	10	11/15/07 21:08	GY	413863
Fluoranthene	ND			20000	10	11/15/07 21:08	GY	413863
Fluorene	ND			20000	10	11/15/07 21:08	GY	413863
Hexachlorobenzene	ND			20000	10	11/15/07 21:08	GY	413863
Hexachlorobutadiene	ND			20000	10	11/15/07 21:08	GY	413863
Hexachlorocyclopentadiene	ND			20000	10	11/15/07 21:08	GY	413863
Hexachloroethane	ND			20000	10	11/15/07 21:08	GY	413863
Indeno(1,2,3-cd)pyrene	ND			20000	10	11/15/07 21:08	GY	413863
Isophorone	ND			20000	10	11/15/07 21:08	GY	413863
Naphthalene	24000			20000	10	11/15/07 21:08	GY	413863
Nitrobenzene	ND			20000	10	11/15/07 21:08	GY	413863
N-Nitrosodi-n-propylamine	ND			20000	10	11/15/07 21:08	GY	413863
N-Nitrosodiphenylamine	ND			20000	10	11/15/07 21:08	GY	413863
Pentachlorophenol	ND			48000	10	11/15/07 21:08	GY	413863
Phenanthrene	ND			20000	10	11/15/07 21:08	GY	413863
Phenol	ND			20000	10	11/15/07 21:08	GY	413863
Pyrene	ND			20000	10	11/15/07 21:08	GŸ	413863
Pyridine	ND			20000	10	11/15/07 21:08	GY	413863
2-Methylphenol	ND			20000	10	11/15/07 21:08	GY	413863
3 & 4-Methylphenol	ND	. **		20000	. 10	11/15/07 21:08	GY	413863
Surr: 2,4,6-Tribromophenol	D	* '	%	19-135	10	11/15/07 21:08	GY	413863
Surr: 2-Fluorobiphenyl	D	*	%	15-140	10	11/15/07 21:08	GY	413863
Surr: 2-Fluorophenol	D	*	%	15-122	10	11/15/07 21:08	GY	413863
Surr: Nitrobenzene-d5	D	*	%	10-134	10	11/15/07 21:08	GY	413863
Surr: Phenol-d5	D	*	%	10-123	10	11/15/07 21:08	GY	413863
Surr: Terphenyl-d14	D	*	%	18-166	10	11/15/07 21:08	GY	413863

	Prep Method	Prep Date	Prep Initials	Prep Factor
- 1	SW3550B	11/13/2007 10:50	LLL	6.00

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

\* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

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SPL Sample ID:

Client Sample ID Fuel Gas Powder

Collected: 11/07/2007 14:30

07110506-01

Site: Richmond, TX 77469

Analyses/Method	Result	QUAL	R	ep.Limit	MCL	Dil. Fac	tor Date An	alyzed	Analyst	Seq. #
TCLP BTEX COMPOUNDS					MC	L	SW8021B	Ur	its: ug/L	
Benzene	290			50	500	50	11/14/07	16:45	ILS	4137429
Surr: 1,4-Difluorobenzene	53.9	*****	%	39-163		50	11/14/07	16:45	ILS	4137429
Surr: 4-Bromofluorobenzene	101		%	57-157		50	11/14/07	16:45	ILS	4137429

Leach Method	Leachate Date	Leach Initials
SW1311	11/09/2007	T_L

Qualifiers:

ND/U - Not Detected at the Reporting Limit

B/V - Analyte detected in the associated Method Blank

\* - Surrogate Recovery Outside Advisable QC Limits

J - Estimated Value between MDL and PQL

E - Estimated Value exceeds calibration curve

TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)

D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

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## **Quality Control Documentation**

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#### Calpine Op Services, Inc.

Calpine, BE

Analysis:

**TCLP BTEX Compounds** 

Method:

SW8021B

WorkOrder:

07110506

Lab Batch ID:

R219313

Method Blank

Samples in Analytical Batch:

RunID: VARD\_071114B-4137426

Units:

ug/L

ILS

Lab Sample ID

Client Sample ID

Analysis Date:

11/14/2007 11:27

Analyst:

07110506-01A

Fuel Gas Powder

Analyte	Result	Rep Limit
Benzene	ND	1.0
Surr: 1,4-Difluorobenzene	100.9	39-163
Surr: 4-Bromofluorobenzene	97.3	57-157

#### Leachate Blank

RunID:

VARD\_071114B-4137427 Units:

ug/L

Analysis Date:

11/14/2007 11:59

Analyst: ILS

Leach Date:

11/09/2007 0:00

Leach By: T\_L Method SW1311

Analyte	Result	Rep Limit
Benzene	ND	1.0
Surr: 1,4-Difluorobenzene	106.2	39-163
Surr: 4-Bromofluorobenzene	102.5	57-157

#### Laboratory Control Sample (LCS)

RunID:

VARD\_071114B-4137425

ug/L Units:

Analysis Date:

11/14/2007 10:58

ILS Analyst:

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Benzene	20.0	19.5	97.3	70	130
Surr: 1,4-Difluorobenzene	30.0	30.9	103	39	163
Surr: 4-Bromofluorobenzene	30.0	30.1	100	57	157

#### Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

07110556-05

RunID:

VARD\_071114B-4137430

Units:

ug/L

Analysis Date: \*

11/14/2007 17:50

Analyst: ILS

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

\* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

07110506 Page 8

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



#### Calpine Op Services, Inc.

Calpine, BE

Analysis: Method: **TCLP BTEX Compounds** 

t: SW8021B

WorkOrder:

07110506

Lab Batch ID:

R219313

							-us -uton				
Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Benzene	ND	20	18.8	93.8	20	19.0	95.0	1.19	26	40	165
Surr: 1,4-Diffuorobenzene	ND	30	29.9	99.7	30	30.3	101	1.35	30	39	163
Surr: 4-Bromofluorobenzene	ND	30	29	96.6	30	28.9	96.4	0.222	30	57	157

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

\* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

07110506 Page 9

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



## Calpine Op Services, Inc.

Calpine, BE

Analysis: Method:

Mercury, Total

SW7471A

WorkOrder:

07110506

Lab Batch ID:

73265

Method Blank

Samples in Analytical Batch:

RunID:

HGLD\_071113A-4132125

Units: mg/kg

Lab Sample ID

Client Sample ID

Analysis Date:

11/13/2007 11:51

Analyst: **EMB** 

07110506-01A

Fuel Gas Powder

Preparation Date: 11/13/2007 9:00

Prep By:

EMB Method SW7471A

Result Rep Limit Analyte 0.03

#### **Laboratory Control Sample (LCS)**

RunID:

HGLD\_071113A-4132126

Units:

mg/kg

Analysis Date:

11/13/2007 11:53

**EMB** Analyst:

Preparation Date: 11/13/2007 9:00

Prep By: EMB Method SW7471A

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Mercury	3.600	3.555	98.76		132

#### Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

07101532-01

RunID: Analysis Date: HGLD\_071113A-4132128

Units:

mg/Kg-dry **EMB** 

Preparation Date:

11/13/2007 11:58

Analyst:

11/13/2007 9:00 Prep By: EMB Method SW7471A

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit	
Mercury	ND	0.3731	0.3880	104.0	0.3731	0.3941	105.6		20	75	125	

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution \* - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

07110506 Page 10

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



#### Calpine Op Services, Inc.

Calpine, BE

Analysis:

Metals by Method 6010B, Total

Method:

SW6010B

WorkOrder:

07110506

Lab Batch ID:

73271

Method Blank

Samples in Analytical Batch:

RunID: TJA\_071119A-4145966

Units:

mg/kg

Lab Sample ID

Client Sample ID

Analysis Date: 11/20/2007 2:40 Analyst:

EG

07110506-01A

Fuel Gas Powder

Preparation Date: 11/13/2007 6:55

Prep By: F\_i Method SW3050B

Analyte	Result	Rep Limit
Arsenic	ND	10
Barium	ND	0.5
Cadmium	ND	0.5
Chromium	ND	1
Iron	ND	2
Lead	ND	5
Selenium	ŊD	10
Silvar	ND	1

#### Laboratory Control Sample (LCS)

RunID:

TJA 071119A-4145967

Units:

mg/kg

Analysis Date:

11/20/2007 2:44

Analyst: EG

Preparation Date: 11/13/2007 6:55

Prep By: F\_I Method SW3050B

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Arsenic	80.90	84.67	104.7	79	121
Barium	156.0	154.3	98.90	82	119
Cadmium	233.0	228.3	97.98	81	119
Chromium	60.80	59.95	98.60	78	121
Iron	14400	12070	83.83	52	149
Lead	76.80	70.38	91.64	81	120
Selenium	82.90	85.13	102.7	76	124
Silver	80.00	84.33	105.4	61	139

#### Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

07110295-16

TJA\_071119A-4145969 RunID:

Units:

mg/kg-dry

Analysis Date:

11/20/2007 2:53

Analyst: EG

Preparation Date: 11/13/2007 6:55

Prep By: F\_I Method SW3050B

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

\* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

07110506 Page 11

TNTC - Too numerous to count

11/21/2007 9:29:26 AM

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



#### Calpine Op Services, Inc.

Calpine, BE

Analysis:

Metals by Method 6010B, Total

SW6010B

WorkOrder:

07110506

Lab Batch ID: 73271

mettiou.	31100105	Lab Batchi D. 7527											
	Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD			High Limit	
Arsenic		ND	131.8	153.6	102.4	131.8	133.1	86.85	14.30	20	75	125	
Barium		148.4	131.8	291.8	108.8	131.8	287.9	105.9	1.340	20	75	125	
Cadmium	The second secon	ND	131.8	133.1	101.0	131.8	129.8	98.50	2.541	20	75	125	
Chromium		30.06	131.8	172.6	108.2	131.8	171.7	107.5	0.5082	20	75	125	
Iron		26030	131.8	32110	N/C	131.8	31780	N/C	N/C	20	75	125	
Lead		ND	131.8	128.0	97.14	131.8	130.5	99.03	1.921	20	75	125	
Selenium		ND	131.8	139.0	105.5	131.8	144.7	109.8	4.044	20	75	125	
Silver		ND	131.8	137.2	102.7	131.8	137.1	102.6	0.1278	20	75	125	

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

\* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

07110506 Page 12

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



#### Calpine Op Services, Inc.

Calpine, BE

Analysis:

Semivolatile Organics by Method 8270C

Method: SW8270C WorkOrder:

07110506

Lab Batch ID:

73264

Method Blank

Samples in Analytical Batch:

RuniD: H\_071116C-4140019

Units:

ug/kg

Lab Sample ID 07110506-01A

Client Sample ID Fuel Gas Powder

Analysis Date: Preparation Date: 11/13/2007 10:50

11/16/2007 15:11

Analyst: GY

Prep By: LLL Method SW3550B

Analyte	Result	Rep Limit
1,2,4-Trichlorobenzene	ND	330
1,2-Dichlorobenzene	ND	330
1,2-Diphenylhydrazine	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
2,4,5-Trichlorophenol	ND	800
2,4,6-Trichlorophenol	ND	330
2,4-Dichlorophenol	ND	330
2,4-Dimethylphenol	ND	330
2,4-Dinitrophenol	ND	800
2,4-Dinitrotoluene	ND	800
2,6-Dinitrotoluene	ND	330
2-Chloronaphthalene	ND	330
2-Chlorophenol	ND	330
2-Methylnaphthalene	ND	330
2-Nitroaniline	ND	800
2-Nitrophenol	ND	330
3,3'-Dichlorobenzidine	ND	330
3-Nitroaniline	ND	800
4,6-Dinitro-2-methylphenol	ND	800
4-Bromophenyl phenyl ether	ND	330
4-Chloro-3-methylphenol	ND	330
4-Chloroaniline	ND	330
4-Chlorophenyl phenyl ether	ND	330
4-Nitroaniline	ND	800
4-Nitrophenol	ND	800
Acenaphthene	ND	330
Acenaphthylene	ND	330
Aniline	ND	330
Anthracene	ND	330
Benz(a)anthracene	ND	330
Benzo(a)pyrene	ND	330
Benzo(b)fluoranthene	ND	330
Benzo(g,h,i)perylene	ND	330
Benzo(k)fluoranthene		330
Benzoic acid	ND	1600
Benzyl alcohol	ON I	330
Bis(2-chloroethoxy)methane	NO	330
Bis(2-chloroethyl)ether	ND	330
Bis(2-chlorolsopropyl)ether	ND	330
Bis(2-ethylhexyl)phthalate	ND	330
Butyl benzyl phthalate	ND	330
Carbazole	ND	330
Chrysene	ND	330
Dibenz(a,h)anthracene	ND ND	330
Dibenzofuran	ND	330
DIDENZOIDIBII	NE NE	

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

\* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

07110506 Page 13

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



#### Calpine Op Services, Inc.

Calpine, BE

Analysis:

Semivolatile Organics by Method 8270C

Method:

SW8270C

WorkOrder:

07110506

Lab Batch ID:

73264

#### Method Blank

RunID:

H\_071116C-4140019

Units:

ug/kg

Analysis Date:

11/16/2007 15:11 Preparation Date: 11/13/2007 10:50

Analyst: GY

Prep By: LLL Method SW3550B

Analyte	Result	Rep Limit
Diethyl phthalate	ND	330
Dimethyl phthalate	ND	330
Di-n-butyl phthalate	ND	330
Di-n-octyl phthalate	ND	330
Fluoranthene	ND	330
Fluorene	ND	330
Hexachlorobenzene	ND	330
Hexachiorobutadiene	ND	330
Hexachlorocyclopentadiene	ND	330
Hexachioroethane	ND	330
ndeno(1,2,3-cd)pyrene	ND	330
sophorone	ND	330
Naphthalene	ND	330
Nitrobenzene	ND	330
N-Nitrosodi-n-propylamine	ND	330
N-Nitrosodlphenylamine	ND	330
Pentachiorophenol	ND	800
Phenanthrene	ND	330
Phenol	ND	330
Pyrene	ND	330
Pyridine	ND.	330
2-Methylphenol	ND.	330
3 & 4-Methylphenol	ND ND	330
Surr: 2,4,6-Tribromophenol	88.0	19-135
Surr: 2-Fluorobiphenyl	88.2	15-140
Surr. 2-Fluorophenol	96.0	15-122
Surr: Nitrobenzene-d5	88.2	10-134
Surr: Phenol-d5	92.0	10-123
Surr: Terphenyl-d14	88.2	18-166

#### Laboratory Control Sample (LCS)

RuniD:

H\_071116C-4140020

Units: ug/kg

Analysis Date:

11/16/2007 15:42

Analyst: GY

Preparation Date: 11/13/2007 10:50

Prep By: LLL Method SW3550B

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,2,4-Trichlorobenzene	850	800	94.1	38	125
1,2-Dichlorobenzene	850	770	90.6	32	129
1,2-Diphenylhydrazine	850	700	82.4	10	256

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

\* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

07110506 Page 14

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



#### Calpine Op Services, Inc.

Calpine, BE

Analysis: Method:

Semivolatile Organics by Method 8270C

SW8270C

WorkOrder:

07110506

Lab Batch ID:

73264

#### Laboratory Control Sample (LCS)

RunID:

H\_071116C-4140020

Units: ug/kg

Analysis Date:

11/16/2007 15:42

Analyst: GY

Preparation Date: 11/13/2007 10:50

Prep By: LLL Method SW3550B

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
1,3-Dichlorobenzene	850	770	90.6	10	172
1,4-Dichlorobenzene	850	770	90.6	20	124
2,4,5-Trichlorophenol	850	800	94.1	40	150
2,4,6-Trichlorophenol	850	790	92.9	37	144
2,4-Dichlorophenol	850	810	95.3	39	135
2,4-Dimethylphenol	850	860	101	32	119
2,4-Dinitrophenol	850	700	82.4	10	191
2,4-Dinitrotoluene	850	790	92.9	30	150
2,6-Dinitrotoluene	850	790	92.9	30	150
2-Chloronaphthalene	850	830	97.6	20	175
2-Chlorophenol	850	790	92.9	23	134
2-Methylnaphthalene	850	790	92.9	30	135
2-Nitroaniline	850	820	96.5	20	175
2-Nitrophenol	850	860	101	29	182
3,3'-Dichlorobenzidine	850	520	61.2	10	261
3-Nitroaniline	850	590	69.4	20	175
4,6-Dinitro-2-methylphenol	850	710	83.5	10	181
4-Bromophenyl phenyl ether	850	750	88.2	20	175
4-Chloro-3-methylphenol	850	780	91.8	22	147
4-Chloroaniline	850	760	89.4	20	175
4-Chlorophenyl phenyl ether	850	780	91.8	25	158
4-Nitroaniline	850	680	80.0	20	175
4-Nitrophenol	850	680	80.0	10	132
Acenaphthene	850	780	91.8	30	160
Acenaphthylene	850	800	94.1	10	150
Aniline	1700	1300	76.5	10	160
Anthracene	850	780	91.8	27	133
Benz(a)anthracene	850	780	91.8	33	143
Benzo(a)pyrene	850	810	95.3	17	163
Benzo(b)fluoranthene	850	750	88.2	24	159
Benzo(g,h,i)perylene	850	790	92.9	10	219
Benzo(k)fluoranthene	850	780	91.8	11	162
Benzoic acid	850	860	101	10	450
Benzyl alcohol	850	870	102	30	160

Qualiflers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution \* - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

07110506 Page 15

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



#### Calpine Op Services, Inc.

Calpine, BE

Analysis: Method:

Semivolatile Organics by Method 8270C

SW8270C

WorkOrder:

07110506

Lab Batch ID:

73264

#### Laboratory Control Sample (LCS)

RunID:

H\_071116C-4140020

Units: ug/kg

Analysis Date:

11/16/2007 15:42

GY Analyst:

Preparation Date: 11/13/2007 10:50

Prep By: LLL Method SW3550B

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Bis(2-chloroethoxy)methane	850	1400	165	33	184
Bis(2-chloroethyl)ether	850	820	96.5	28	158
Bis(2-chloroisopropyl)ether	850	820	96.5	36	166
Bis(2-ethylhexyl)phthalate	850	860	101	10	_ 158
Butyl benzyl phthalate	850	890	105	10	152
Carbazole	850	790	92.9	45	135
Chrysene	850	790	92.9	17	168
Dibenz(a,h)anthracene	850	800	94.1	10	227
Dibenzofuran	850	790	92.9	45	135
Diethyl phthalate	850	770	90.6	10	160
Dimethyl phthalate	850	770	90.6	10	112
Di-n-butyl phthalate	850	810	95.3	10	118
Di-n-octyl phthalate	850	820	96.5	10	146
Fluoranthene	850	760	89.4	26	137
Fluorene	850	770	90.6	45	135
Hexachlorobenzene	850	790	92.9	10	152
Hexachlorobutadiene	850	860	101	20	140
Hexachlorocyclopentadiene	850	550	64.7	10	152
Hexachloroethane	850	730	85.9	30	140
Indeno(1,2,3-cd)pyrene	850	780	91.8	10	171
Isophorone	850	820	96.5	21	196
Naphthalene	850	790	92.9	21	133
Nitrobenzene	850	830	97.6	35	180
N-Nitrosodi-n-propylamine	850	820	96.5	10	230
N-Nitrosodiphenylamine	1700	1900	112	30	160
Pentachlorophenoi	850	740	87.1	14	176
Phenanthrene	850	780	91.8	45	135
Phenol	850	760	89.4	44	120
Pyrene	850	840	98.8	26	127
Pyridine	1700	1400	82.4	10	150
2-Methylphenol	850	760	89.4	40	160
3 & 4-Methylphenol	850	710	83.5	40	160
Surr: 2,4,6-Tribromophenol	2500	2400	96.0	19	135
Surr: 2-Fluorobiphenyl	1700	1600	94.1	15	140

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution \* - Recovery Outside Advisable QC Limits

J - Estimated value between MDL and PQL

E - Estimated Value exceeds calibration curve N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

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TNTC - Too numerous to count

11/21/2007 9:29:27 AM

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



#### Calpine Op Services, Inc.

Calpine, BE

Analysis: Method:

Semivolatile Organics by Method 8270C

SW8270C

WorkOrder:

07110506

Lab Batch ID:

73264

#### **Laboratory Control Sample (LCS)**

RunID: Analysis Date:

H\_071116C-4140020

Units:

ug/kg GY

Preparation Date: 11/13/2007 10:50

11/16/2007 15:42

Analyst:

Prep By: LLL Method SW3550B

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Surr: 2-Fluorophenol	2500	2600	104	15	122
Surr: Nitrobenzene-d5	1700	1700	100	10	134
Surr: Phenol-d5	2500	2500	100	10	123
Surr: Terphenyl-d14	1700	1500	88.2	18	166

#### Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

07110229-33

RunID:

H\_071116C-4140022

Units:

ug/kg-dry

Analysis Date: Preparation Date:

11/16/2007 16:44 11/13/2007 10:50 Analyst: GY

Prep By: LLL Method SW3550B

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
1,2,4-Trichlorobenzene	ND	969	661	68.2	969	730	75.3	9.84	28	17	122
1,2-Dichlorobenzene	ND	969	639	65.9	969	753	77.6	16.4		32	129
1,2-Diphenylhydrazine	ND	969	673	69.4	969	707	72.9	4.96	60	10	256
1,3-Dichlorobenzene	ND	969	616	63.5	969	707	72.9	13.8	60	10	172
1,4-Dichlorobenzene	ND	969	627	64.7	969	718	74.1	13.6	28	20	124
2,4,5-Trichlorophenol	ND	969	787	81.2	969	889	91.8	12.2	60	40	150
2,4,6-Trichlorophenol	ND	969	741	76.5	969	821	84.7	10.2	60	37	144
2,4-Dichlorophenol	ND	969	741	76.5	969	832	85.9	11.6	60	39	135
2,4-Dimethylphenol	ND	969	764	78.8	969	867	89.4	12.6	60	32	119
2,4-Dinitrophenol	ND	969	490	50.6	969	627	64.7	24.5	60	10	191
2,4-Dinitrotoluene	ND	969	775	80.0	969	878	90.6	12.4	50	30	150
2,6-Dinitrotoluene	ND	969	730	75.3	969	832	85.9	13.1	60	30	150
2-Chloronaphthalene	ND	969	741	76.5	969	821	84.7	10.2	60	20	175
2-Chlorophenol	ND	969	639	65.9	969	764	78.8	17.9	40	23	134
2-Methylnaphthalene	ND	969	707	72.9	969	798	82,4	12.1	60	30	135
2-Nitroaniline	ND	969	787	81.2	969	912	94.1	14.8	60	20	175
2-Nitrophenol	ND	969	718	74.1	969	798	82.4	10.5	60	29	182
3,3'-Dichlorobenzidine	ND	969	570	58.8	969	616	63.5	7.69	60	10	261

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

\* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

07110506 Page 17

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



#### Calpine Op Services, Inc.

Calpine, BE

Analysis: Method: Semivolatile Organics by Method 8270C

SW8270C

•

WorkOrder:

07110506

Lab Batch ID:

73264

#### Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

RunID:

07110229-33

H\_071116C-4140022

Units: ug/kg-dry

Analysis Date:

11/16/2007 16:44

Analyst: GY

Preparation Date: 11/13/2007 10:50

Prep By: LLL Method SW3550B

Anaiyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
3-Nitroaniline	ND	969	570	58.8	969	730	75.3	24.6	60	20	175
4,6-Dinitro-2-methylphenol	ND	969	650	67.1	969	741	76.5	13.1	60	10	181
4-Bromophenyl phenyl ether	ND	969	741	76.5	969	810	83.5	8.82	60	20	175
4-Chloro-3-methylphenol	ND	969	730	75.3	969	844	87.1	14.5	42	22	147
4-Chloroaniline	ND	969	673	69.4	969	787	81.2	15.6	60	20	175
4-Chlorophenyl phenyl ether	ND	969	741	76.5	969	855	88.2	14.3	60	25	158
4-Nitroaniline	ND	969	661	68.2	969	775	80.0	15.9	60	20	175
4-Nitrophenol	ND	969	650	67.1	969	730	75.3	11.6	50	10	132
Acenaphthene	ND	969	707	72.9	969	798	82.4	12.1	31	30	160
Acenaphthylene	ND	969	730	75.3	969	810	83.5	10.4	50	10	150
Aniline	ND	1940	1120	57.6	1940	1370	70.6	20.2	60	10	160
Anthracene	ND	969	764	78.8	969	844	87.1	9.93	50	27	133
Benz(a)anthracene	ND	969	787	81.2	969	844	87.1	6.99	50	33	143
Benzo(a)pyrene	ND	969	787	81.2	969	867	89.4	9.66	60	17	163
Benzo(b)fluoranthene	ND	969	753	77.6	969	844	87.1	11.4	60	24	159
Benzo(g,h,i)perylene	ND	969	753	77.6	969	844	87.1	11.4	60	10	219
Benzo(k)fluoranthene	ND	969	764	78.8	969	821	84.7	7.19	60	11	162
Benzoic acid	ND	969	1000	104	969	981	101	2.30	60	10	450
Benzyl alcohol	ND	969	730	75.3	969	832	85.9	13.1	60	30	160
Bis(2-chloroethoxy)methane	ND	969	1140	118	969	1370	141	18.2	60	33	184
Bis(2-chloroethyl)ether	ND	969	661	68.2	969	775	80.0	15.9	60	28	158
Bis(2-chloroisopropyl)ether	ND	969	673	69.4	969	787	81.2	15.6	60	36	166
Bis(2-ethylhexyl)phthalate	ND	969	867	89.4	969	946	97.6	8.81	60	10	158
Butyl benzyl phthalate	ND	969	878	90.6	969	946	97.6	7.50	60	10	152
Carbazole	ND	969	775	80.0	969	832	85.9	7.09	60	45	135
Chrysene	ND	969	787	81.2	969	844	87.1	6.99	60	17	168
Dibenz(a,h)anthracene	ND	969	775	80.0	969	867	89.4	11.1	60	10	227
Dibenzofuran	ND	969	730	75.3	969	821	84.7	11.8	60	45	135
Diethyl phthalate	ND	969	741	76.5	969	844	87.1	12.9	60	10	160
Dimethyl phthalate	ND	969	730	75.3	969	832	85.9	13.1	60	10	112
Di-n-butyl phthalate	ND	969	821	84.7	969	889	91.8	8.00	60	10	118
Di-n-octyl phthalate	ND	969	787	81.2	969	855	88.2	8.33	60	10	146

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

\* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

07110506 Page 18

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



#### Calpine Op Services, Inc.

Calpine, BE

Analysis: Method:

Semivolatile Organics by Method 8270C

SW8270C

WorkOrder:

07110506

Lab Batch ID:

73264

#### Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked:

RunID:

07110229-33

H\_071116C-4140022

Units: ug/kg-dry

GY Analyst:

Analysis Date: Preparation Date: 11/13/2007 10:50

11/16/2007 16:44

Prep By: LLL Method SW3550B

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Fluoranthene	ND	969	741	76.5	969	798	82.4	7.41	60	26	137
Fluorene	ND	969	730	75.3	969	832	85.9	13.1	60	45	135
Hexachlorobenzene	ND	969	764	78.8	969	810	83,5	5.80	60	10	152
Hexachlorobutadiene	ND	969	707	72.9	969	775	80.0	9.23	60	20	140
Hexachlorocyclopentadiene	ND	969	525	54.1	969	570	58.8	8.33	60	10	152
Hexachloroethane	ND	969	593	61.2	969	684	70.6	14.3	60	30	140
Indeno(1,2,3-cd)pyrene	ND	969	741	76.5	969	832	85.9	11.6	60	10	171
Isophorone	ND	969	707	72.9	969	810	83.5	13.5	60	21	196
Naphthalene	ND	969	684	70.6	969	753	77.6	9.52	60	21	133
Nitrobenzene	ND	969	707	72.9	969	798	82.4	12.1	60	35	180
N-Nitrosodi-n-propylamine	ND	969	661	68.2	969	775	80.0	15.9	38	10	230
N-Nitrosodiphenylamine	. ND	1940	1820	94.1	1940	1940	100	6.06	60	30	160
Pentachlorophenol	ND	969	684	70.6	969	707	72.9	3.28	50	14	176
Phenanthrene	ND	969	753	77.6	969	821	84.7	8.70	60	45	135
Phenol	ND	969	639	65.9	969	753	77.6	16.4	42	44	120
Pyrene	ND	969	844	87.1	969	889	91.8	5.26	31	26	127
Pyridine	ND	1940	1140	58.8	1940	1250	64.7	9.52	60	10	150
2-Methylphenol	ND	969	673	69.4	969	798	82.4	17.1	60	40	160
3 & 4-Methylphenol	ND	969	593	61.2	969	707	72.9	17.5	60	40	160
Surr: 2,4,6-Tribromophenol	ND	2850	2390	84.0	2850	2620	92.0	9.09	30	19	135
Surr: 2-Fluorobiphenyl	ND	1940	1480	76.5	1940	1600	82.4	7.41	30	15	140
Surr: 2-Fluorophenol	ND	2850	2170	76.0	2850	2390	84.0	10.0	30	15	122
Surr: Nitrobenzene-d5	ND	1940	1370	70.6	1940	1600	82.4	15.4	30	10	134
Surr: Phenof-d5	ND	2850	2170	76.0	2850	2390	84.0	10.0	30	10	123
Surr: Terphenyl-d14	ND	1940	1600	82.4	1940	1600	82.4	0	30	18	166

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

\* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply. 07110506 Page 19

TNTC - Too numerous to count

11/21/2007 9:29:27 AM

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



#### Calpine Op Services, Inc.

Calpine, BE

Analysis:

Reactive Sulfide - Solid

Method:

SW7.3.4.2

WET\_071110E-4126713

WorkOrder:

07110506

Lab Batch ID:

R218693

**Method Blank** 

Units: mg/kg

Lab Sample ID

Client Sample ID

Analysis Date:

RunID:

11/10/2007 12:00

Analyst:

ESK

07110506-01A

Samples in Analytical Batch:

Fuel Gas Powder

Result Rep Limit Analyte Reactive Sulfide ND

Laboratory Control Sample (LCS)

RunID:

WET\_071110E-4126715

Units:

mg/kg

Analysis Date:

11/10/2007 12:00

Analyst:

**ESK** 

Analyte Spike Result Percent Lower Upper Added Recovery Limit Limit Reactive Sulfide 100.0 93.50 93.50 85 115

#### Sample Duplicate

Original Sample:

07110404-01

RuniD: Analysis Date: WET\_071110E-4126726

11/10/2007 12:00

Units: Analyst:

mg/kg **ESK** 

Analyte	Sample Result	DUP Result	RPD	RPD Limit
Reactive Sulfide	ND	ND	0	20

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

\* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

07110506 Page 20

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



#### Calpine Op Services, Inc.

Calpine, BE

Analysis: Method:

Ignitability Modified Open Cup

**ASTM D92-01** 

WorkOrder:

07110506

Lab Batch ID:

R218704

Samples in Analytical Batch:

Lab Sample ID

Client Sample ID

07110506-01A

Fuel Gas Powder

Laboratory Control Sample (LCS)

RuniD:

WET\_071110J-4126885

Units:

Analysis Date:

11/10/2007 15:00

Analyst: GF

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Ignitability	80.00	82.00	102.5	97.5	102.5

#### Sample Duplicate

Original Sample:

RunID:

07110506-01

WET\_071110J-4126887

Units:

۰F

Analysis Date:

11/10/2007 15:00

GF Analyst:

Analyte	Sample Result	DUP Result	RPD	RPD Limit
Ignitability	212	212	0	20

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

\* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

07110506 Page 21

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



#### Calpine Op Services, Inc.

Calpine, BE

Analysis: Method:

Corrosivity SW9045D

WorkOrder:

07110506

Lab Batch ID:

R218853

Samples in Analytical Batch:

Lab Sample ID

Client Sample ID

07110506-01A

Fuel Gas Powder

**Laboratory Control Sample (LCS)** 

RunID:

WET\_071112W-4129983

Units:

pH Units

Analysis Date:

11/12/2007 15:45

Analyst:

M\_V

	Analyte	Spik Adde		Result	Percent Recovery	Lower Limit	Upper Limit
Corrosivity			000	7.050	100.7	98	102

#### Sample Duplicate

Original Sample:

RunID:

07110577-01

WET\_071112W-4129986

Units:

pH Units

Analysis Date:

11/12/2007 15:45

Analyst: M\_V

Analyte	Sample Result	DUP Result	RPD	RPD Limit
Corrosivity	8.09	8.07	0.248	20

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

\* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

07110506 Page 22

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.



#### Calpine Op Services, Inc.

Calpine, BE

Analysis: Method:

RunID:

Reactive Cyanide-Solid

SW7.3.3.2

WET\_071113F-4131676

WorkOrder:

07110506

Lab Batch ID:

R218932

Method Blank

mg/kg

Lab Sample ID

Samples in Analytical Batch:

Client Sample ID

Analysis Date:

11/13/2007 7:30

Analyst: ESK

Units:

07110506-01A

Fuel Gas Powder

. Analyte	•	Result	Rep Limit
Reactive Cyanide		ND	1.0

#### Laboratory Control Sample (LCS)

RunID:

WET\_071113F-4131677

Units:

mg/kg

Analysis Date:

11/13/2007 7:30

Analyst:

**ESK** 

	Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Ì	Reactive Cvanide	2.000	0,4598	22.99	5	50

#### Sample Duplicate

Original Sample:

07110470-01

RunID:

WET\_071113F-4131680

Units:

mg/kg

Analysis Date:

11/13/2007 7:30

Analyst: **ESK** 

Analyte	Sample Result	DUP Result	RPD	RPD Limit
Reactive Cyanide	ND	ND	0	20

Qualifiers:

ND/U - Not Detected at the Reporting Limit

MI - Matrix Interference

B/V - Analyte detected in the associated Method Blank

D - Recovery Unreportable due to Dilution

J - Estimated value between MDL and PQL

\* - Recovery Outside Advisable QC Limits

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

07110506 Page 23

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

# Sample Receipt Checklist And Chain of Custody

07110506 Page 24 11/21/2007 9:29:30 AM



#### Sample Receipt Checklist

Workorder:  Date and Time Received  Temperature:	07110506 : 11/9/2007 1:00:00 PM 3.0°C		Received By: Carrier name Chilled by:		
	cooler in good condition?	Yes 🔽	No 🗌	Not Present	
2. Custody seals intac	t on shippping container/cooler?	Yes	No 🗆	Not Present	V
3. Custody seals intac	t on sample bottles?	Yes 🗌	No 🗌	Not Present	$\checkmark$
4. Chain of custody pr	esent?	Yes 🗹	No 🗆		
5. Chain of custody sig	gned when relinquished and received?	Yes 🗹	No 🗀		
6. Chain of custody ag	rees with sample labels?	Yes 🗹	No 🗌		
7. Samples in proper o	ontainer/bottle?	Yes 🔽	No 🗆		
8. Sample containers i	ntact?	Yes 🔽	No 🗆		
9. Sufficient sample vo	olume for indicated test?	Yes 🗹	No 🗆		
0. All samples received	i within holding time?	Yes 🗹	No 🗀		
1. Container/Temp Bla	nk temperature in compliance?	Yes 🔽	No 🗆		
2. Water - VOA vials ha	ve zero headspace?	Yes 🗌	No □ VO	A Vials Not Present	V
3. Water - Preservation	checked upon receipt (except VOA*)?	Yes 🗌	No 🗌	Not Applicable	V
*VOA Preservation C	checked After Sample Analysis	index or constitution of the definition of the constitution of the		e didica como manufaci tina como solvente de como con con con con con con con con con co	
SPL Representat Cilent Name Contac		Contact Date 8	k Time:		
Non Conformance Issues:					
Client Instructions:		ementos ara Altaria. India			50 of man and man and an and an and an an an an an an an an an an an an an
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07110506 Page 25 11/21/2007 9:29:31 AM

			S	PL,	Inc.					SPL Workorder No.				273778			
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Client Name: CALPINE, BR.	· · · · · · · · · · · · · · · · · · ·				trix bottle	size	pres.				Re	ques	ted A				
Address: 3440 LOCKWOO	D RD.			<u>.</u> 2	#SS	ial						<u> </u>					
Phone/Fax: 281 - 545-8930	, 281-	545-89	71(fo	w )  O	glg -	othe		يم وم	!	4		57					
Client Contact: EDDE PANGAVI,					× ge	4 ×	103 her	ine		ene	≥	"LË					
Project Name/No.:	<i>f</i>	Colpine.		S=soil	e X=other A=amber glass V=vial X=other	1=1 liter 4=4oz 40=vial 8=8oz 16=16oz X=other	2=HNO3 X=other	Number of Containers		TCLP Benzene	+ IRON	SEMI - VOLATILES					
Site Name: CALPINE, B	VE			S	X	14 91	2 ×	ζζ		Be	+	101					
Site Location: RICHMOND,				ter.	SL=sludge P=plastic G=glass	er	4	ır ol		ď	X	-					an series
Invoice To: BRAZOS VALLEY		Ph: 281-5	15-89	30 ₽	=sh plas gla	l lit	HCI H2S	mpe	RCI	2	RCRA	$\mathcal{Z}$					
SAMPLE ID	DATE		comp	W=water	A A B	= 3   = 3   = 3	1=HCl 3=H2SO4	Nu		7	14	3					
FUEL GAS POWDER	11/7/07	2:30PM		7	( G	\ j	X	1	V		V	V					
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Client/Consultant Remarks:				Lab	oratory rem	arks:					_			Intact Ice? Temps	א <sup>י</sup> ל 1		ZZ
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Requested TAT		rting Requirer						Specia	i netecu	on Limi	ts (speci	1y):			PIVI FO	riew (în	
Contract 72hr 7	Standard QC	Level 3 QC	Leve	el 4 QC	TX TRRP						····				150		2
Contract 72hr 24hr Standard	1. Relinquish EDDIE	ed by Sampler PANGAM	: BAN			date /1/7	107	time 2:30	OPM)	2. Rec	iyed by	1	11/	2/07	7 /	104)	•
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MAIN SMA 8-5-09 0855 HRS J-S BOTPM DESK DRAWER MAIN J-S BOTTOM DESK DRAWER 8-5-09 0909 URS JM Copy CES 1/09

Bid Document: Technical (S-IR1)

### WAHA OIL COMPANY TRIPOLI - LIBYA

# BID DOCUMENT (TECHNICAL PART)

FOR

# OPEN-AIR DRAIN PITS SLUDGE PROCESSING AT ES-SIDER TERMINAL CRUDE OIL STORAGE TANK FARM

Prepared by Engineering Department

## **SECTION-I: INSTRUCTIONS TO BIDDERS**

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1.030	TREATMENT SPECIFICATIONS						
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1.051(b)	DOMESTIC ELECTRICITY						
1.051(c)	DIESEL FUEL & GASOLINE						
1.051(d)	TELEPHONE & MAIL SERVICES						
1.051(e)	INFORMATION						
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1.070	EXTRA WORK						
1.080	FORCE MAJEURE						
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1.100	INSPECTION SERVICES						
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Mr. I.R. Marcus,
Secretary, Contracts Committee,
Waha Oil Company,
International Airport Road KM. 4.5
P.O. Box 395,
Tripoli,
G.S.P.L.A.J

Each of the three envelopes, in addition to the address, shall be marked and submitted in accordance with the following instructions:

(a) CONTRACTOR shall initial and stamp each page of the Bid Document (Technical Part). This shall form the Technical Part of the CONTRACTOR's bid. The envelope shall be marked:

#### "Confidential"

# Bid Document - Technical Part Open-Air Drain Pits Sludge Processing At Es-Sider Terminal Crude Oil Storage Tank Farm

(b) CONTRACTOR shall initial and stamp each page of the Commercial Part (Unpriced).

All commercial terms and conditions shall be entered in the Commercial Part

(Unpriced) and the spaces for prices shall be crossed out. This shall form the

Commercial Part (Unpriced) of the CONTRACTOR's bid and the envelope shall be

marked:

#### "Confidential"

Bid Document – Commercial Part (Unpriced)
Open-Air Drain Pits Sludge Processing
At Es-Sider Terminal Crude Oil Storage Tank Farm

(c) CONTRACTOR shall initial and stamp each page of the Commercial Part (Priced). CONTRACTOR shall also fill in, fully and legibly in ink, all blank spaces in the Commercial Part (Priced). The Commercial Part (Priced) shall also be <u>signed and dated</u> in long hand in the space provided. This shall form the Commercial Part (Priced) of the CONTRACTOR's bid and shall be returned in a separate sealed opaque envelope marked:

"Confidential"

Bid Document – Commercial Part (Priced)
Open-Air Drain Pits Sludge Processing
At Es-Sider Terminal Crude Oil Storage Tank Farm

- Work shall be performed in accordance with this bid document and related codes and related standards. In the event that the CONTRACTOR finds discrepancies in, or omissions from the Bid Document, or if he is in doubt as to their meaning, he shall contact WAHA Contracts Committee in writing for clarifications. Notwithstanding this, however, WAHA reserves the right to forward written clarifications to all contractors.
- No oral, telephone, telex, facsimile transmission or telegraph proposal of modification to the bid will be considered. Incomplete and/or conditional bids and bids otherwise not submitted in conformity with these "Instructions to Bidders" will be rejected.
- WAHA will NOT sponsor a reconnaissance trip to the job site. However, the CONTRACTOR is urged to visit the job site to fully acquaint himself of the tank farm layout, available means for disposal, avenues of access, and familiarize himself with the facilities, difficulties, and restrictions that may have a bearing on the execution of the wor. (WAHA site personnel will be willing to assist the CONTRACTOR in his efforts to get the required information as available at their end at site). All arrangements, transportation, accommodation, catering, etc. as may be required by the CONTRACTOR as related to this work shall be the responsibility of the CONTRACTOR. However, failure of the CONTRACTOR to do so shall not in any way relieve him from his obligations under the contract and shall not be considered as reason for him to claim time delay or extra cost.
- 1.09 A brief but comprehensive list of manpower (showing the number of each trade), plant, and equipment (showing the number of each type) to be used on the project should be submitted to WAHA with the Bid Document.
- 1.010 A well-defined and <u>concise</u> Project Implementation Schedule (PIS) in bar chart form and split into major items of work with corresponding durations in calendar days shall be submitted with the Bid Document.
- 1.011 All equipment, machines, associated accessories, tools, etc. shall meet the applicable specifications, shall be in a safe and reliable working condition, shall be fully licensed as required by Libyan Law, and shall be approved by WAHA before commencement of work. All operators shall be fully licensed as required by Libyan Law. Relevant documents shall be available at site with the related equipment or operator at all times for unexpected spot check and inspection.
- 1.012 WAHA does not obligate itself to accept the lowest bid or any other bid and reserves the right to accept or reject in part or in whole any or all bids. The competency, diligence, and professional experience of the CONTRACTOR will be accorded substantial weight in evaluating his bid.
- 1.013 WAHA has the option to award any portion of or the whole of the works under consideration when awarding the contract to one ore more of the participating successful bidders.

#### INTENT OF DRAWINGS 1.020

The listed drawings attached to this Bid Document (see Section-V item A) are provided for 1.021 general guidance only and WAHA does not guarantee accuracy of details or otherwise as currently available at site. The CONTRACTOR must ensure that all information required for him to complete his bid is site verified.

#### TREATMENT SPECIFICATIONS 1.030

Bs & W %:

- This work requires specialty methods, tools and equipment for the intended open-air drain 1.031 pits crude oil sludge processing using latest technology in this field where the emphasis is on the efficiency of oil for sale recovery from the sludge and the other products are environmentally friendly water for safe drainage and solids for safe dumping or further Notwithstanding this, the Scope of Work (Section-II), safe industrial application. Construction Contract Conditions (Section-III), Specifications (Section-IV), and as may be specifically required in other parts of the Bid Document shall govern the manner in which the work will be conducted.
- Where the Scope of Work and Specifications are supplemented by reference to other 1.032 standard specifications or codes the latest revision and/or editions of the pertinent specification and/or code in effect immediately prior to award of the contract shall govern.

#### **WORK LAYOUT** 1.040

CONTRACTOR shall be responsible for all groundwork as may be required for his site 1.041 camp, equipment layout, trenching for his utility lines and cables, access roads, and/or for any other purposes as may be required for the proper execution of the work. Such works, including locations and routing, shall be approved by WAHA before implementation can begin.

#### 1.050 SERVICES AND SUPPORT TO BE PROVIDED BY WAHA

WAHA will provide the following services and support to the CONTRACTOR subject to 1.051 the details, terms, and conditions given against each item:

#### POTABLE WATER FOR DOMESTIC USE

Subject to WAHA's requirements and availability thereof, potable water in reasonable. quantities (as determined by WAHA) will be supplied at one water point designated by WAHA for domestic use. Notwithstanding, WAHA makes no representation or warrantee as to either the purity or potability of this water. CONTRACTOR, however, shall be responsible for the collection, transportation, and storage of this water at his base camp or at any other point for his further usage as may be necessitated by the work.

#### (b) DOMESTIC ELECTRICITY

WAHA will permit CONTRACTOR to utilize available electricity from an electrical point designated by WAHA to provide his base camp with necessary electrical power as long as the use of such electricity does not affect WAHA's operational requirements and is in reasonable quantities as determined by WAHA. Any electrical work required to adapt to WAHA's provided electricity or to run the electrical supply from the designated electrical point to the CONTRACTOR's camp shall be the responsibility of and at the expense of CONTRACTOR, but must be performed to WAHA's satisfaction.

#### (c) DIESEL FUEL & GASOLINE

Subject to availability and as long as WAHA's operational requirements are not affected, diesel fuel and gasoline will be made available to CONTRACTOR in reasonable quantities (as determined by WAHA) at WAHA's field warehouse. CONTRACTOR will compensate WAHA at WAHA's established prices.

#### (d) TELEPHONE & MAIL SERVICES

Subject to WAHA's operational requirements and without expense to the CONTRACTOR, WAHA will permit CONTRACTOR to use WAHA's communications and mail service between WAHA's Tripoli and Field offices for the purpose of work co-ordination ONLY.

#### (e) INFORMATION

Upon request by the CONTRACTOR, WAHA will provide the CONTRACTOR with information concerning the work as available. For other information that requires a site visit, it is the responsibility of the Contractor to visit the site and collect the required information. This shall be done with the express permission and under the direct guidance of WAHA and at no extra charge to WAHA.

#### 1.060 CONTRACTOR'S RESPONSIBILITIES AND EXPENSE

- 1.061 In addition to the other responsibilities of CONTRACTOR set forth else where in the Bid Document CONTRACTOR shall be responsible for the following:
  - (a) In addition to the requirements of Sections 3.021 and 3.046 of the Construction Contract Conditions, and unless otherwise expressly provided herein, CONTRACTOR shall furnish at the job site all equipment, machines, special transport, tools, and all manpower required for completing the work. All and any means of transportation as may be required by the CONTRACTOR in performing the work shall be the sole responsibility of the CONTRACTOR. All equipment, associated accessories, and tools shall meet the required specifications, shall be in a safe and reliable condition, shall be fully licensed as required by Libyan Law and shall be approved by Waha before commencement of work.

(h) Customs duties levied on CONTRACTOR's equipment shall be for Contractor's sole account.

#### 1.070 EXTRA WORK

CONTRACTOR acknowledges, understands, and agrees, and it is a condition hereof, that CONTRACTOR shall make such alterations, deletions, and modifications in the work specified and shall perform such additional work as WAHA directs by written Change/Work Order duly signed by the Manager, Engineering Department. CONTRACTOR covenants to perform such work promptly and to the best of its ability without argument or dispute. In the event that WAHA revises or deletes work or directs CONTRACTOR to perform extra work, the related charges shall be calculated at the rates specified in the contract. If, however, the rates are not clearly defined, CONTRACTOR shall nevertheless perform the work so directed and the related payable amount shall be negotiated and agreed upon between WAHA and CONTRACTOR.

#### 1.080 FORCE MAJEURE

If either party to the contract is unable to comply with the terms and conditions hereof by reason of force majeure, namely, any cause or event not reasonably within the control of either party hereto, then such party shall be excused from complying with the contract. The party relying on force majeure for suspending performance hereunder shall give to the other party immediate actual notice, and as soon thereafter as possible shall give formal written notice specifying in detail the force majeure relied upon and the effective date of suspension. Either party shall have the right to terminate the contract immediately upon serving or receiving notice of force majeure.

#### 1.090 LOSS, DAMAGE, OR DESTRUCTION CAUSED BY CONTRACTOR

Notwithstanding anything herein contained to the contrary, and in accordance with Section 3.306 of the Construction Contract Conditions, it is further emphasized, hereby agreed and a condition hereof, that CONTRACTOR shall be responsible for any loss, damage or destruction of property and facilities, wheresoever located, in the custody of or subject to WAHA's control, which is caused by or attributable to the act or omission of CONTRACTOR, its agents or employees, and CONTRACTOR covenants to reimburse WAHA for all reasonable costs incurred by WAHA in repairing or replacing the same.

#### 1.100 INSPECTION SERVICES

Inspection of the work shall be performed in accordance with all of the provisions of Section 3.180 (Inspection) of the Construction Contract Conditions.

#### 1.110 WAHA CAUSED DELAY

If CONTRACTOR's operations are curtailed or suspended for causes solely attributable to WAHA, WAHA agrees to enter into negotiations with CONTRACTOR, the object being to effect an equitable settlement of CONTRACTOR's expense incurred as a consequence of the foregoing, and to adjust the agreed completion date accordingly.

- (b) Except as expressly provided in subsection 1.050, CONTRACTOR shall be self-sufficient in all respects. WAHA facilities such as mess halls, recreation buildings, living quarters, etc. will NOT be available for use by CONTRACTOR's personnel. In the rare cases where WAHA may, at WAHA's discretion, provide accommodation, catering, etc. the cost shall be charged to CONTRACTOR's account at WAHA's applicable rates.
- (c) CONTRACTOR shall provide all of his personnel assigned to the work with full accommodation and catering in CONTRACTOR's supplied, erected, and maintained camp facilities set up by CONTRACTOR. The camp facilities shall be set up and equipped to support his assigned manpower. Location and space to be allocated for the camp facilities shall have WAHA's prior approval.
- (d) CONTRACTOR shall be responsible for completing all the works under the contra and shall employ qualified technicians and tradesmen having proven previous experience in work similar to that to be performed under the contract. CONTRACTOR's job site Representative shall be responsible for receiving WAHA's instructions and directions and must comply with them. CONTRACTOR must submit a resume of his site Representative and his deputy, for approval by WAHA prior to their assignment at the job site.
- (e) CONTRACTOR's site representative should present himself at the job site throughout the hours scheduled for work. Should WAHA judge that the CONTRACTOR's assigned representative (or any other CONTRACTOR personnel) is unsuitable, WAHA shall have the right to have such personnel removed and shall be replaced by appropriate personnel acceptable to WAHA.
- (f) CONTRACTOR's field personnel shall work a minimum of eight (8) hours per dare for seven (7) days per week. Notwithstanding, CONTRACTOR shall co-ordinate his work hours with those of WAHA's field staff all in the best interest of executing the work in an efficient and timely manner. The starting and finishing times of WAHA field staff vary in summer and winter and details of any changes are posted on WAHA notice boards in the field. CONTRACTOR will be permitted to work extra hours but only after WAHA's prior approval. Any interruptions or stoppages, unless previously sanctioned by WAHA, shall be considered as unauthorized suspension of the work.
- (g) All facilities furnished by CONTACTOR for use by CONTRACTOR's employees, specifically including but not limited to CONTRACTOR's work camps, shall comply with the applicable laws and regulations (including those pertaining to sanitation) as well as regulations established by WAHA at time of awarding of the contract. Such facilities shall be subject to unannounced inspection by WAHA's Site Management and/or Field Doctor.

1.133 All such insurance policies required to be obtained and carried by the CONTRACTOR in accordance with the provisions of the aforesaid Clause 3.120 of the Construction Contract Conditions contain a requirement that the insurance carried shall waive any right of subrogation against WAHA and shall also carry WAHA as an additional co-insured.

#### 1.140 TERMINATION

- 1.141 Notwithstanding any thing to the contrary which may be contained or implied in Sections 3.340 (Cancellation Of Contract In Event Of Default) and 3.360 (Force Majeure) of the Construction Contract Conditions, WAHA shall have the right, exercisable in its sole discretion, to terminate the contract upon ten (10) days advance written notice to the CONTRACTOR in the following cases:
  - (a) If CONTRACTOR enters into bankruptcy proceedings, whether voluntary or involuntary, or if all or substantially all of CONTRACTOR's assets are assigned or attached for the benefit of its creditors.
  - (b) If CONTRACTOR unreasonably delays or fails to perform his contractual obligations due to reasons attributable to the CONTRACTOR.
  - (c) If CONTRACTOR's registration as per Sub-Section 1.200 hereinafter is cancelled or expires.
- 1.142 Any exercise of WAHA's right of termination as set forth and covered under this Article shall be without the necessity of fulfilling any statutory judicial formality with respect thereto, including, specifically, service of formal notice as provided for in the Civil Code of Libya particularly Article 159 and 160 thereof, or obtaining a Court Order satisfying or decreeing cancellation of the contract. In the event that WAHA terminates the contract pursuant to the provisions stated above, CONTACTOR shall be entitled to payment on the basis of the percentage of all the materials furnished and all work completed to the effective date of such termination at the rates or in the amounts agreed to herein pro-rated to such termination date. Payment will be effected after deduction of all amounts due to WAHA.

#### 1.150 HAZARDOUS OPERATIONAL REQUIREMENTS

1.151 CONTRACTOR's vehicles and other mobile and/or stationary construction equipment or machinery shall be essentially furnished with spark arrestors in the exhaust system for deployment in the tank farm or other classified hazardous areas.

#### 1.160 PAYMENT CONSIDERATIONS

1.161 In full consideration for the satisfactory performance of all CONTRACTOR's obligations under the contract, WAHA will pay CONTRACTOR, in accordance with the payment provisions as per details given in the "Commercial Part-Priced" of the Bid Document.

1.112 Under no circumstances will WAHA consider payment for any other delay, irrespective of the nature thereof or the cause therefore, unless reported to WAHA in writing within 24 hours after the actual commencement of the claimed delay period.

#### **1.120 SAFETY**

- 1.121 CONTRACTOR shall conduct the work in accordance with all of the provisions of Section 3.040 of the Construction Contract Conditions, Safety. CONTRACTOR's attention is drawn specifically to Section 3.042, which gives WAHA the right at any time to suspend CONTRACTOR's work for reasons of safety.
- 1.122 CONTRACTOR acknowledges and agrees that the WORK herein contemplated is inherently dangerous both to life and property. Hence CONTRACTOR covenants that requisite safety precautions shall be <u>rigorously enforced</u> at all times. In performing the work, CONTRACTOR shall adhere to <u>All</u> pertinent safety practices and shall comply with all applicable safety regulations, including those established by WAHA at the time of awarding of the contract as set forth in WAHA's current Safety Manual which is available for CONTRACTOR's reference and inspection at any time. Such practices and regulations shall be regarded as minimum requirements and CONTRACTOR shall institute such additional safety precautions as circumstances may necessitate and/or as directed by WAHA.
- 1.123 CONTRACTOR must provide all its employees engaged in the work with the following safety equipment as a minimum:

Safety boots, hats, glasses, goggles and work gloves;

Dust masks and respiratory equipment;

Protective clothing;

Any other special safety/protective equipment as may be directed by WAHA or required for the safe, efficient, and timely execution of the work.

#### 1.130 INSURANCE

- 1.131 CONTRACTOR acknowledges, understands and agrees and it is a condition hereof that CONTRACTOR shall strictly comply throughout the course of the work with all of the insurance provisions of Sections 3.120 (Insurance) of the Construction Contract Conditions.
- 1.132 CONTRACTOR's attention is drawn specifically to Section 3.122 of the Construction Contract Conditions, which requires CONTRACTOR to furnish WAHA with certain certificates of insurance prior to the commencement of any work. In this instance, commencement of work shall also be construed to also include the mobilization at the job site. Therefore none of the CONTRACTOR's materials equipment or personnel will be permitted at the job site until such time as the required insurance certificates have been submitted to and accepted by WAHA.

Tripoli Trade Register. CONTRACTOR is obliged to submit to WAHA an official proof of such registration.

(b) Notwithstanding that CONTRACTOR shall have obtained WAHA's prior written consent to sublet or subcontract any part of the WORK, CONTRACTOR shall not be relieved of responsibility for proper performance of the part of the work so subcontracted.

#### 1.230 GOVERNING LAW

1.231 CONTRACTOR agrees that the laws, rules, regulations and ordinances of the G.S.P.L.A.J. and directives issued pursuant thereto apply to the CONTRACTOR performance of the contract within the G.S.P.L.A.J. and that violation thereof by the CONTRACTOR shall constitute a breach of the Contract by CONTRACTOR. Any dispute or difference arising out of the Contract shall be referred to any Libyan court having jurisdiction to decide such dispute or difference.

#### 1.240 CONFIDENTIALITY OF BID DOCUMENT

- 1.241 CONTRACTOR, having received a set of the Bid Document, shall treat the details of the Bid Document as private and confidential.
- 1.242 CONTRACTOR declining to submit a bid shall return the Bid Document to WAHA at the address stated in the Bid Document.

#### 1.250 BID VALIDITY

1.251 CONTRACTOR's bid shall be valid for a period of one hundred and eighty (180) days from the FINAL bid closing date.

#### '.260 CONTRACT EFFECTIVE DATE AND DURATION

- 1.261 (a) The contract covering all of the five open-air pits shall be effective on the date of its execution and shall remain in effect for the period as spelled out in the contract.
  - (b) For each individual pit to be released for work, CONTRACTOR shall prepare a customized scope of work with work schedule particular to that pit at that time taking into consideration that the CONTRACTOR will carry out a thorough estimation of the quantity and composition of the sludge in the pit. The customized scope of work (including the corresponding time schedule) for each pit shall be approved by WAHA before implementation. The total cost for each scope of work for each pit will be calculated in proportion to the actual measured amount of processed sludge and the sludge processing cost rate as per the contract.

#### 1.170 PERIODIC PAYMENT

1.171 CONTRACTOR shall submit to WAHA <u>Monthly Progress Invoices</u>, supported with original time sheets and plant/equipment hire sheets duly signed by the CONTRACTOR and counter-signed by WAHA.

#### 1.180 METHOD AND CURRENCY OF PAYMENT.

1.181 Unless otherwise provided, all amounts due on work progress invoices will be paid in checks payable in **US Dollars** only.

#### 1.200 REGISTRATION CONDITIONS

- 1.201 CONTRACTOR warrants and agrees that it has registered its branch in the G.S.P.L.A.J. in compliance with article 645 of the Libyan Commercial Code and Article 22 of Law No. 65 of 1970 of Merchant and Commercial Companies and Regulations issued pursuant thereto.
- 1.202 CONTRACTOR further agrees that if such registration is cancelled or expires, WAHA may at any time thereafter, in its sole discretion, terminate the Contract for such cause forthwith by mailing written notice to the CONTRACTOR of such termination. The effective date of such termination shall be the date such notice is mailed. In the event thereof WAHA shall be obligated to pay the CONTRACTOR only for work and services performed and materials and equipment furnished pursuant to the Contract to such termination date, at the rates or in the amounts agreed to in the Contract prorated to termination date, without any payment for demobilization.

#### 1.210 TAX CONDITIONS

- 1.211 Without limiting the generality of Section 3.100 of the Construction Contract Conditions (Taxes) and CONTRACTOR's payment thereof CONTRACTOR agrees, at its own expense:
  - (a) To file Arabic version of the contract with the G.S.P.L.A.J. Tax Department and to provide WAHA's Legal Department with at least one registered copy.
  - (b) To obtain and affix to its invoices submitted to WAHA for payment hereunder all legally required G.S.P.L.A.J. revenue stamps.
  - (c) To obtain and deliver to WAHA all tax clearance letters and releases from the G.S.P.L.A.J Tax Department as may be required (if any) pursuant to the tax laws, rules or regulations and the notices issued by the G.S.P.L.A.J. Tax Department thereunder, as a condition upon which release of payments by WAHA to CONTRACTOR of the amounts due to the CONTRACTOR will be effected.

#### 1.220 ASSIGNMENT

contract or any part thereof, without the <u>prior written</u> consent of WAHA. However, assignment, subletting and/or subcontracting should be limited to companies recisted.

Tripoli Trade Register. CONTRACTOR is obliged to submit to WAHA an official proof of such registration.

(b) Notwithstanding that CONTRACTOR shall have obtained WAHA's prior written consent to sublet or subcontract any part of the WORK, CONTRACTOR shall not be relieved of responsibility for proper performance of the part of the work so subcontracted.

#### 1.230 GOVERNING LAW

1.231 CONTRACTOR agrees that the laws, rules, regulations and ordinances of the G.S.P.L.A.J. and directives issued pursuant thereto apply to the CONTRACTOR performance of the contract within the G.S.P.L.A.J. and that violation thereof by the CONTRACTOR shall constitute a breach of the Contract by CONTRACTOR. Any dispute or difference arising out of the Contract shall be referred to any Libyan court having jurisdiction to decide such dispute or difference.

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- 1.261 (a) The contract covering all of the five open-air pits shall be effective on the date of its execution and shall remain in effect for the period as spelled out in the contract.
  - (b) For each individual pit to be released for work, CONTRACTOR shall prepare a customized scope of work with work schedule particular to that pit at that time taking into consideration that the CONTRACTOR will carry out a thorough estimation of the quantity and composition of the sludge in the pit. The customized scope of work (including the corresponding time schedule) for each pit shall be approved by WAHA before implementation. The total cost for each scope of work for each pit will be calculated in proportion to the actual measured amount of processed sludge and the sludge processing cost rate as per the contract.

(c) Notwithstanding any thing to the contrary which may be contained or implied in the Bid Document, WAHA shall have the right to terminate the Contract for any reason at any time upon giving ten (10) days advance notice to the CONTRACTOR. In such event, the CONTRACTOR shall be entitled to recover from WAHA, by full and final satisfaction, all claims and all monies due prior to such termination.

#### 1.270 FACILITY RELEASE FOR WORK

1.271 Except for unseen operational requirements, there is no limit on the number of pits to be released for sludge processing.

#### 1.280 SPECIAL CONSIDERATION FOR LOCAL ENTITIES

- 1.281 Contractor shall note and adhere to the following:
  - (a) CONTRACTOR shall employ and train local personnel.
  - (b) CONTRACTOR shall use local transport (government or private) as available.
  - (c) CONTRACTOR shall use locally available materials in the execution of the project as available/applicable.

#### 1.290 DEVIATION FROM BID DOCUMENT

1.291 CONTRACTOR should list separately in a single addendum to his bid submission any deviations, alterations or suggestions that in any way contravene any of the technical, commercial, or legal terms of the Bid Document.

#### 1.300 WARRANTEE

1.301 CONTRACTOR warrants that the services to be performed by him hereunder shall be performed in accordance with the terms, conditions, and specifications of the Contract and the generally accepted standards and practices prevailing in the oil industry. In the event CONTRACTOR services fail to comply with the foregoing warranty, and CONTRACTOR is notified in writing within one (1) year from the completion of the services rendered by him, it is then the CONTRACTOR's sole obligation to re-do without charge such failed services, all to the entire satisfaction of WAHA.

#### 1.310 NOTICES

1.311 Unless otherwise expressly provided in the Contract, any notice required or permitted by the Contract shall be in writing and delivered personally to the addresses shown and agreed in the Contract.

Bid Document: Technical (S-IIR1)

#### SECTION-II: SCOPE OF WORK

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#### SCOPE OF WORK

#### 2.100 GENERAL

- 2.101 So far WAHA has been desludging its main crude oil storage tanks at its Es-Sider tank farm using the traditional method of desludging: using water to break down the sludge, scraping and other mechanical means to remove hard to handle sludge deposits, and then dumping the resulting oil water "chyme" into its open air earthen sludge pits on the periphery of the tank farm.
- 2.102 Due to environmental considerations, WAHA is planning to start desludging its oil storage tanks and treat its oily water sludge as it exists in its open air pits using new methods and technologies where by the required end products are environmentally friendly, namely:
  - a) Oil for sale;
  - a) Water for safe and environmentally friendly drainage;
  - a) Solids for safe and environmentally friendly dumping or for further safe and environmentally friendly industrial applications.

#### 2.200 OPEN-AIR PITS DESLUDGING

- 2.201 Sludge exists in the open-air earthen oily water pits in approximately two layers:
  - a) A substantial lower layer which can be considered as relatively separated water;
  - b) Sludgy oil layer floating on top but substantially thinner than the water layer.

No exact measurements are available as to the exact ratio of sludgy oil to water in these pits.

The contents of these pits are to be processed giving environmentally friendly end products as follows:

- a) Oil for sale:
- b) Water for safe and environmentally friendly drainage;
- c) Solids for safe and environmentally friendly dumping or for further safe and environmentally friendly industrial applications.
- 2.202 After desludging, the pits are to be left in such a condition that future backfilling (by others) of the same with local or imported environmentally friendly soil ends with a safe and environmentally friendly reclaimed area.

#### 2.300 SLUDGE QUANTITIES

- 2.301 The sludge quantities given elsewhere in the bid document (Section I: items 1.002) are a rough approximation and are given for bidding purposes only. Establishing the exact quantities and composition of sludge as it exists in each of the open-air pits shall be the responsibility of the CONTRACTOR who shall use the latest techniques for this purpose. The quantities thus measured are to be approved by WAHA and shall form the basis for:
  - a) Further contractual payments
  - b) Determining the efficiency of the desludging process (that is the amount of saleable oil recovered).

#### 2.400 PROCESS DESCRIPTION

- 2.401 The CONTRACTOR shall submit with his bid a comprehensive description of the desludging process he intends to use to execute the desludging work of the open-air pits as described in this bid document.
- 2.402 The process description is required to be all-inclusive, well itemized and sequenced, concise, and accompanied by such illustrative diagrams as Process Flow Description (PFD), brochures, etc. This description shall specifically address the process efficiency indicating the end products and their respective composition percentage wise or as deemed more appropriate by the CONTRACTOR.
- 2.403 CONTRACTOR must substantiate his process description with references to similar works he has successfully executed using the same process (names, addresses, and fax number of clients are required).

#### 2.500 TIME SCHEDULES

Based on this sludge quantity CONTRACTOR is to submit with his bid the time he requires to desludge the five open-air pits.

Note: site mobilization time to be indicated separately.

# WAHA OIL COMPANY

# **SECTION 3 - CONSTRUCTION CONTRACT CONDITIONS**

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#### **SECTION-1: INSTRUCTIONS TO BIDDERS**

#### 1.000 GENERAL INSTRUCTIONS

1.001 Waha Oil Company (hereinafter referred to as "WAHA") conducts extensive petroleum operations in the Great Socialist People's Libyan Arab Jamahiriya (GSPLAG). Its main end product is crude oil for sale in the international market. Before shipping, this crude oil is stored in WAHA's main crude oil storage tank farm at its Es-Sider Terminal on the South Cost of the Mediterranean Sea.

This crude oil storage tank farm consists of nineteen (19) tanks. Fifteen (15) of these tanks are 313,000 Barrels capacity (42,000 metric tons: 61 meters diameter x 17 meters height) each and the remaining four (4) tanks are 500,000 Barrels capacity (67,000 metric tons: 79 meters diameter x 17 meters height) each. All roofs on these tanks are of the pontoon floating roof type.

- 1.002 As it is the case with all such crude oil storage tanks, with time sludge forms at the bottom of these tanks. So far WAHA has been using the traditional method for tanks desludging whereby water is used to assist in removing sludge from the tank and the resulting oily water "chyme" is dumped into open-air earthen pits. WAHA has five such pits at the periphery of its tank farm with an estimated total sludge volume of about 450,000 barrels. This sludge in the pits is basically a substantial sub-layer of water with a crude oil layer floating on the top. No definite figure for the ratio of oil to water in these pits is available, but one of these pits is virtually dry.
- 1.003 Due to environmental regulations and restrictions, WAHA is planning to treat its oily water sludge as it exists in its open-air pits using new methods and technology where by the required end products are environmentally friendly, namely:
  - a) Oil for sale;

- a) Water for safe drainage;
- a) Solids for safe dumping or for further safe industrial applications.
- 1.004 WAHA wishes to enter into a contract for the proposed open-air sludge pits treatment work and for this purpose will receive bids from qualified bidders, any one of whom will hereinafter be referred to as the "CONTRACTOR".
- 1.005 The CONTRACTOR shall receive one set of the Bid Document (Technical Part) and two copies of the Bid Document (Commercial Part): one labeled "Commercial Part-Unpriced" and the other "Commercial Part-Priced". CONTRACTOR shall complete each of the three documents in full and shall submit each in a separate sealed opaque envelope addressed to:

#### SECTION 3

#### CONSTRUCTION CONTRACT CONDITIONS

#### 3.000 DEFINITIONS, INTERPRETATIONS AND INTENT

- 3.001 In the CONTRACT as defined in Section 3.005 hereof the following words and expressions shall have the meanings herein assigned to each except where the context requires otherwise.
- 3.002 "WAHA" shall mean Waha Oil Company, its successors and assigns.
- 3.003 "CONTRACTOR" shall mean the person, firm, corporation or establishment to which WAHA has awarded the CONTRACT and shall include CONTRACTOR'S personal representatives, successors and authorized assigns.
- 3.004 "WORK" shall mean all work and construction to be performed in accordance with the CONTRACT.
- 3.005 "CONTRACT" shall mean all the Contract Documents, consisting of the Agreement and each document which is referred to and identified in the Agreement as a part thereof or incorporated therein.
- 3.006 Unless clearly stated to the contrary, any statement to the effect that CONTRACTOR will "furnish" or "supply" an item means that CONTRACTOR, at CONTRACTOR'S sole cost and expense, shall be responsible for purchase, transportation to the jobsite or other location specified and, if appropriate, installation thereat of the subject item.
- 3.007 Any statement to the effect that WAHA shall "furnish" or "supply" an item means that without cost to CONTRACTOR, WAHA shall provide transport to the jobsite or other location specified and make said item available to CONTRACTOR at such location.
- 3.008 Should any provision in these CONSTRUCTION CONTRACT CONDITIONS conflict with a provision in any other Contract Document constituting a part of the CONTRACT, then the provision as written in the CONSTRUCTION CONTRACT CONDITIONS, or otherwise, shall take precedence and control in the order in which the Contract Documents are listed in the Agreement, with the provisions of the Agreement taking first precedence.
- 3.009 The Contract Documents are complementary and anything required by one shall be as binding as if required by all. The intent of the Contract Documents to include in the total Contract price, the cost of all CONTRACTOR-furnished labor, equipment, materials, supplies, transportation and all other expenses requisite to proper execution and completion of the WORK, equipment, materials, supplies or work described

in words having a recognized technical or trade meaning, unless otherwise specifically defined in the Contract Documents shall be construed in accordance with such recognized meaning.

#### 3.010 STANDARD OF PERFORMANCE

3.011 CONTRACTOR shall devote its best efforts and experience to performance of the WORK and shall not withhold the use of any improved techniques, equipment, or skills because of the geographical location thereof. CONTRACTOR warrants that the WORK shall be performed with due diligence, in a good and workmanlike manner, and in accordance with the highest standards prevailing in the Petroleum Industry, as well as with those established by WAHA from time to time.

#### 3.020 PERSONNEL TO BE PROVIDED BY CONTRACTOR

3.021 Unless otherwise expressly provided in the Contract Documents, CONTRACTOR shall provide all personnel required in performance of the WORK. All wages, salaries and expenses of whatsoever nature arising from the employment, support and maintenance of such personnel shall be CONTRACTOR'S responsibility and expense including, but not limited to food, lodging, medical attention and all transportation required for CONTRACTOR'S personnel. All costs, expenses and charges for benefits of any kind which accrue to any employee of CONTRACTOR shall be for the sole account of CONTRACTOR and shall include, without limitation, overtime, vacation, severance, restday and holiday pay as well as compensation due on account of accident, sickness and disability of any employee of CONTRACTOR.

#### 3.030 UNDESIRABLE EMPLOYEES

3.031 If WAHA considers that any person employed by CONTRACTOR in performance of the WORK is incompetent or negligent or whose employment is otherwise deemed by WAHA to be undesirable, CONTRACTOR shall, upon WAHA'S request and at CONTRACTOR'S expense, forthwith remove the said employee and promptly provide a replacement therefor acceptable to WAHA.

#### 3.040 **SAFETY**

3.041 In performing the WORK, CONTRACTOR shall adhere to pertinent safety practices and shall comply with all applicable safety regulations, including those established by WAHA from time to time as set forth in WAHA'S current Safety Manual which is available at WAHA'S main office for CONTRACTOR'S inspection at any time. Such practices and regulations shall be regarded as minimum requirements, and CONTRACTOR shall institute such additional safety precautions as circumstances indicate are appropriate.

3.042 WAHA shall have the right at any time to suspend the WORK for reasons of safety. The duration of such suspension shall be at the discretion of WAHA. Following such suspension, CONTRACTOR shall not, under any circumstance, resume the WORK without written authorization from WAHA.

#### 3.045 EQUIPMENT, MATERIALS AND SUPPLIES

- 3.046 Unless otherwise expressly provided in the Contract Documents, CONTRACTOR shall furnish at jobsite all equipment, materials and supplies required in the WORK, whether the same are to be permanently incorporated therein or employed in construction thereof. All costs of operating, maintaining and repairing construction equipment shall be for CONTRACTOR'S account.
- 3.047 All equipment, materials and supplies to be furnished by CONTRACTOR for permanent construction shall be new and shall comply in all respects with the construction specifications.
- 3.048 Any equipment, materials and supplies to be furnished by WAHA, together with the locations where WAHA will make the same available to CONTRACTOR, shall be set forth in either the Agreement or the construction specifications or the Instructions to Bidders. In the absence therein of specific identification thereof all such equipment, materials and supplies shall be furnished by CONTRACTOR.
- 3.049 In the event that the construction specifications require WAHA to furnish equipment, materials or supplies, WAHA transfer forms shall be used to establish the quantities and types thereof as well as the location where the same are to be made available to CONTRACTOR. Quantities and types thereof shall be determined by inventories conducted jointly by WAHA and CONTRACTOR as deliveries are made by WAHA. Following receipt thereof by CONTRACTOR, all damage, loss or destruction of the same regardless of cause shall be at the sole risk and expense of CONTRACTOR.
- 3.050 In the event that WAHA'S equipment, materials or supplies are damaged lost or destroyed while in CONTRACTOR'S custody, CONTRACTOR shall promptly repair or replace the same at CONTRACTOR'S expense and to WAHA'S satisfaction.
- 3.051 Delays in the WORK due to repair or replacement of damaged, lost or destroyed equipment, materials or supplies shall not result in extending any date specified in the Contract Documents for completion of the WORK.
- 3.052 The responsibility and expense of loading out WAHA-furnished equipment, materials and supplies at the location where the same are to be made available to CONTRACTOR, as well as costs of transportation of the same to the jobsite, shall be for the account of CONTRACTOR.

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- 3.053 Maintenance, operation and repair of WAHA-furnished construction equipment in CONTRACTOR'S custody shall be at CONTRACTOR'S expense.
- 3.054 In the event that WAHA determines that equipment supplied by CONTRACTOR is inadequate for timely completion of the WORK, WAHA shall have the right to require CONTRACTOR to furnish additional equipment of types and in quantities to be specified by WAHA.
- 3.055 Upon completion of the WORK, CONTRACTOR shall return WAHA-furnished equipment, surplus materials and supplies to field storage points to be designated by WAHA, where the same shall be racked neatly by CONTRACTOR before delivery thereof to WAHA shall be deemed complete.

#### 3.060 PAYMENT OF BILLS

3.061 CONTRACTOR shall make prompt settlement of all invoices and charges for labor, equipment, supplies, utilities and facilities which CONTRACTOR furnishes in performance of the WORK.

#### 3.070 FACILITIES FURNISHED BY CONTRACTOR

- 3.071 All facilities furnished by CONTRACTOR for use of CONTRACTOR'S employees, specifically including but not limited to CONTRACTOR'S work camps, if any, shall comply with applicable Laws and Regulations (including those pertaining to sanitation) as well as regulations established by WAHA from time to time.
- 3.072 All such facilities shall be located in a WAHA-approved area at a minimum distance of one (1) kilometer from any permanent WAHA camp. CONTRACTOR'S camp facilities shall be completely independent and CONTRACTOR shall not look to WAHA for any support therefor other than non-potable water, unless otherwise expressly provided.

#### 3.080 <u>LEGAL STATUS OF CONTRACTOR - PERMITS AND LICENCES</u>

3.081 CONTRACTOR warrants that CONTRACTOR is fully qualified and registered to do all things necessary under the CONTRACT and further that CONTRACTOR has obtained all necessary permits and licences required of it by Law in order to perform the WORK. Any costs and expenses made necessary by or on account of this obligation shall be for the sole account of CONTRACTOR. WAHA, however, shall obtain all government authorization required for CONTRACTOR'S access to and egress from the construction site.

#### 3.090 APPLICABLE LAW

3.091 CONTRACTOR agrees that all of the G.S.P.L.A.J. statutes, laws, rules and regulations and ordinances concerning the operation of the CONTRACTOR hereunder shall apply to this Contract. All disputes not resolved amicably

between the Parties shall be submitted by either party to any Libyan court having competence to decide such dispute.

#### 3.100 TAXES

- 3.101 CONTRACTOR, at its own expense, shall pay:
  - A. All stamp taxes imposed on CONTRACTOR by Stamp Duty Law No. 65 of 1973, and all amendments and executory regulations issued pursuant thereto; and
  - B. All other taxes imposed by reason of the WORK or services to be performed by CONTRACTOR including, but not by way of limitation, all licences, fees, income, franchise and personal property taxes; and
  - C. All employment taxes or contributions imposed by Law or Regulations with respect to, or measured by the compensation (wage, salary, or other) paid to employees of CONTRACTOR for the WORK or services contemplated by the Agreement including, but not by way of limitation, taxes or contributions for unemployment compensation insurance, old age benefits, welfare funds, pensions and annuities and disability insurance.

CONTRACTOR shall defend, indemnify and hold WAHA harmless from any liability for any, and all such taxes or contributions or interest or penalties. for failure to pay the same.

#### 3.110 SOCIAL SECURITY LAW OF LIBYA

3.111 CONTRACTOR shall comply with the Social Security Law of G.S.P.L.A.J. and all Regulations pertaining thereto. CONTRACTOR shall pay or cause to be paid, all compensation, social security, unemployment compensation, medical and surgical or hospital benefits which may become due or payable thereunder. Upon WAHA'S request, CONTRACTOR shall furnish WAHA with a photocopy of appropriate certificates obtained from the Secretariat of Social Insurance evidencing CONTRACTOR'S compliance with the Social Security Law in connection with its employees.

#### 3.120 INSURANCE

3.121 Commencing not later than ten (10) days' following execution of the Agreement and continuing thereafter until completion of all WORK, CONTRACTOR shall maintain in full force and effect and at its sole expense and cost, the following insurance:

#### A. COMPREHENSIVE GENERAL LIABILITY INSURANCE

Comprehensive General Liability, including Contractual Liability Insurance, with bodily injury limits of not less than \$100,000 for one

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- 3.124 CONTRACTOR shall require each sub-contractor employed by CONTRACTOR to carry and pay for insurance in amounts deemed necessary by CONTRACTOR to cover the WORK of the particular sub-contractor. When required by WAHA, CONTRACTOR shall furnish or cause to be furnished to WAHA, certificates of insurance or certified or photocopies of insurance policies for each sub-contractor.
- 3.125 CONTRACTOR'S failure to comply, partially or fully, with any and all of the insurance provisions as stated hereinabove shall in no way act to relieve CONTRACTOR from holding WAHA harmless in compliance with Section 3.280 of these CONDITIONS. CONTRACTOR'S obligations under Section 3.280 being independent of its obligations under this section.

#### 3.180 INSPECTION

- 3.181 The WORK shall be subject to inspection by WAHA'S inspector(s), who may be other than employees of WAHA.
- 3.182 Each inspector shall have the right to inspect the WORK or any part thereof at any time and at any stage.
- 3.183 The inspector shall have the right to suspend construction of any part of the WORK which is not in accordance with the Contract including, without limitation, defects in workmanship or CONTRACTOR-furnished equipment and materials.
- 3.184 Suspension of construction by an inspector shall not constitute a basis for recourse against WAHA provided that such suspension is founded on CONTRACTOR'S default or on deviation from obligations under the Contract.
- 3.185 In event of a dispute or disagreement between CONTRACTOR and an inspector, WAHA shall have the right to resolve the same and CONTRACTOR shall accept such decision by WAHA as final.

#### 3.190 CONTRACTOR'S REPRESENTATIVES

3.191 CONTRACTOR'S Senior Representative: So long as the CONTRACT remains in effect CONTRACTOR shall maintain in Tripoli a duly authorized individual herein referred to as CONTRACTOR'S "senior representative" who shall be authorized to act for and bind CONTRACTOR in all matters pertaining to the WORK. All WAHA decisions and instructions concerning the WORK or WAHA'S enquiries related thereto shall be notified to the senior representative who shall promptly comply therewith or respond thereto as the case may be. In the event that the senior representative leaves Tripoli at any time he shall designate a deputy acceptable to WAHA to act for him in his absence, and CONTRACTOR shall vest such deputy with the same authority with which the senior representative is vested.

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3.192 CONTRACTOR'S Jobsite Representative: In addition to the foregoing senior representative, CONTRACTOR shall designate another individual hereinafter referred to as CONTRACTOR'S "jobsite representative" who shall remain at the jobsite at all times until termination of the Contract and who shall have full authority to act for and bind CONTRACTOR with respect to all work thereat. CONTRACTOR'S jobsite representative shall not be relieved or replaced except with WAHA'S prior written approval. CONTRACTOR'S jobsite representative shall maintain appropriate records in the field, shall have ready access to any relevant information concerning the WORK in CONTRACTOR'S possession and, upon request, shall promptly supply the same to WAHA.

#### 3.200 INSUFFICIENT INSTRUCTIONS

- 3.201 In the event that any part of the WORK shown on any drawing or required in any specification is either insufficiently specified or specified in such a manner as to result in other than first class WORK CONTRACTOR, before proceeding with the WORK, shall notify WAHA of such deficiency together with recommendations to rectify the same.
- 3.202 Nothing contained in this section shall be construed to constitute CONTRACTOR as guarantor of either the design or the specifications of the WORK unless the Agreement places such responsibility on CONTRACTOR.

#### 3.210 ALTERATIONS, DELETIONS, OMISSIONS AND ADDITIONAL WORK

- 3.211 WAHA reserves the right at any time to order alterations in the WORK including, but not limited to modifications therein, omissions and deletions therefrom and additions thereto.
- 3.212 CONTRACTOR shall not make any alteration in the WORK or furnish or use substitute or extra materials except upon WAHA'S prior authorization therefor to be evidenced by a properly signed WAHA Work/Change Order.
- 3.213 Unless otherwise expressly provided in the Agreement, WAHA'S Work/Change Orders shall be approved in writing by authorized representatives of both WAHA and CONTRACTOR.
- 3.214 In case of alterations resulting in additional cost to CONTRACTOR or credit to WAHA, such cost or credit is to be added to or deducted from CONTRACTOR'S compensation as the case may be and shall, if then known, be specified on the WAHA Work/Change Order or if not then determined, shall be negotiated between WAHA and CONTRACTOR and confirmed in writing by both as soon as practicable thereafter.
- 3.215 Acceptance by CONTRACTOR of a Work/Change Order shall not relieve CONTRACTOR of any responsibility for scheduled completion of the WORK unless expressly so provided therein.

3.216 A copy of the Work/Change Order shall accompany any invoice for alterations and related equipment, materials and supplies.

#### 3.220 INVOICES AND PAYMENTS

- 3.221 On or before the tenth day of the month following performance of WORK for which CONTRACTOR is then entitled to payment, CONTRACTOR shall submit invoices therefor in quadruplicate, prepared in accordance with WAHA'S Accounting Department requirements, and specifying thereon all amounts due CONTRACTOR with requisite details concerning location, date and description of the work performed, together with such further substantiation as WAHA may require. Each invoice must contain evidence of payment of stamp taxes levied thereon. Payment shall be made by check posted to CONTRACTOR. CONTRACTOR shall not be entitled to any process or partial payments unless such payments are expressly authorized in the Contract. WAHA reserves the right:
  - 1. To question any invoice of CONTRACTOR following presentation thereof; and
  - 2. To withhold payment of such portion of any invoice as may be questioned before payment.

#### 3.230 CLEAN-UP

3.231 During all stages of construction CONTRACTOR shall keep the jobsite and adjacent areas in a clean and orderly condition. Upon completion of the WORK, CONTRACTOR shall remove all equipment tools, materials and supplies from the jobsite. Rubbish and debris shall be disposed of by CONTRACTOR in a manner approved by WAHA'S chief inspector, and all to the satisfaction of the said inspector.

#### 3.240 <u>CERTIFICATE OF COMPLETION</u>

3.241 Upon final completion of the WORK, CONTRACTOR shall submit a Certificate of Completion for approval by WAHA. In said certificate CONTRACTOR shall warrant that the WORK has been completed in accordance with the CONTRACT. CONTRACTOR'S warranties shall run from the date that the said certificate is endorsed by WAHA. Within ten (10) calendar days following receipt of the foregoing certificate, WAHA shall either endorse the same or decline to do so and promptly thereafter shall notify CONTRACTOR of its refusal and the reason therefor.

#### 3.250 WARRANTY FOR ONE YEAR

3.251 All CONTRACTOR-furnished equipment and materials incorporated into the WORK and all workmanship performed by CONTRACTOR shall be warranted for a period of one (1) year from the date of WAHA'S endorsement of CONTRACTOR'S Certificate of Completion.

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3.252 At any time prior to termination of the above-specified period of warranty, WAHA shall have the right to require CONTRACTOR to repair or to replace (as WAHA elects and at CONTRACTOR's sole expense) any defective CONTRACTOR-furnished equipment, materials or workmanship.

#### 3.260 SURETY BOND AND BANK GUARANTY

- 3.261 Upon request of WAHA, CONTRACTOR shall furnish a surety bond in the full amount of and guaranteeing faithful performance of the CONTRACT. The surety bond shall be written on a form and purchased from a source designated by WAHA.
- 3.262 In the alternative, if WAHA so elects, CONTRACTOR shall furnish a bank guarantee from a bank and in a form acceptable to WAHA, in an amount specified by WAHA but not to exceed the total CONTRACT price.
- 3.263 In the event that WAHA requires CONTRACTOR to furnish either a surety bond or bank guarantee as above provided, WAHA shall reimburse CONTRACTOR for the premium cost thereof.

# 3.270 <u>ASSIGNMENT, SUBLETTING AND SUBCONTRACTING OF PRIME</u> CONSTRUCTION

- 3.271 CONTRACTOR shall not assign, sublet or subcontract the CONTRACT, or any part of the construction specified in the CONTRACT without the prior written consent of WAHA.
- 3.272 Notwithstanding that CONTRACTOR shall have obtained WAHA'S prior written consent to sublet or subcontract any part of the WORK, CONTRACTOR shall not be relieved of responsibility for proper performance of the part of the WORK so subcontracted.
- 3.273 WAHA shall have the right to assign the Contract but WAHA shall not be relieved of any obligation to CONTRACTOR thereunder unless CONTRACTOR expressly consents to such assignment in writing.

#### 3.280 CONTRACTOR TO INDEMNIFY AND SAVE WAHA HARMLESS

3.281 CONTRACTOR shall indemnify and save WAHA harmless from any and all claims, losses, damages, costs and expenses of whatsoever nature (including liability for sickness, bodily injury or death of any employee by whomever employed) which are related to the WORK including, without limitation those attributable to any act or omission of CONTRACTOR, its agents or invitees, or any person employed by CONTRACTOR or by one or more of CONTRACTOR'S sub-contractors, unless such claim, loss, damage, cost or expense is a consequence of the sole negligence of WAHA, its employees or agents, provided, however, that in the case of any claim for loss, damage, cost or expense which is judicially determined to have been caused by the joint negligence of WAHA and CONTRACTOR, whether

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originally asserted against CONTRACTOR or WAHA or both, WAHA and CONTRACTOR shall share the burden of the damages (and expenses arising there-from) in proportion to the degree of negligence legally attributable to each. Pursuant to this obligation, CONTRACTOR shall defend WAHA in any litigation relating to the WORK and shall keep WAHA fully and timely informed as to every development in any such litigation.

#### 3.290 RISK OF LOSS OF THE WORK

3.291 All damage, loss or destruction of the WORK or any part thereof (whether or not finished) from any cause whatsoever shall be at the sole risk and responsibility of CONTRACTOR until WAHA'S acceptance endorsement on CONTRACTOR'S Certificate of Completion.

#### 3.300 CUSTOMS DUTIES

- 3.301 All customs duties levied on or incident to importation into Libya of CONTRACTOR-furnished materials and equipment to be incorporated into the construction as a permanent part of the facility or to be used by CONTRACTOR in performing the WORK under this CONTRACT shall be at the expense of, and paid directly to the Libyan authorities by CONTRACTOR.
- 3.302 Unless otherwise expressly provided in the CONTRACT, it shall be CONTRACTOR'S responsibility and expense to arrange for and pay all costs incurred in obtaining import authorization for and clearing CONTRACTORfurnished equipment, materials and supplies through Libyan Customs.

#### 3.305 LOSS, DAMAGE OR DESTRUCTION CAUSED BY CONTRACTOR

3.306 Any loss, damage or destruction of property or facilities owned by, in custody of or subject to WAHA'S control which is caused by or attributable to act or omission of CONTRACTOR shall be the responsibility of CONTRACTOR who shall reimburse WAHA for all reasonable costs incurred by WAHA in repair or replacement thereof.

#### 3.310 INDEPENDENT CONTRACTOR

- 3.311 It is expressly agreed that CONTRACTOR is an independent contractor and that neither CONTRACTOR nor its employees nor its subcontractors nor their employees are or shall be considered servants, agents, or employees of WAHA.
- 3.312 WAHA shall have no authority with respect to, and assumes no responsibility whatsoever for either the performance of the supervision of the WORK or the means by which or the manner in which the personnel of CONTRACTOR and its subcontractors perform the same, CONTRACTOR being solely responsible therefor.

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3.313 All work performed by CONTRACTOR pursuant to the CONTRACT shall be under the exclusive control of CONTRACTOR and shall be performed by personnel of CONTRACTOR. Such personnel shall at all times be subject to the sole direction of and paid by CONTRACTOR.

#### 3.320 CONTRACTOR DELAYS

- 3.321 If CONTRACTOR is responsible for a delay in the progress of the WORK, CONTRACTOR shall, upon written notice from and without additional cost to WAHA, work such overtime and utilize such additional equipment and/or personnel as may be necessary to eliminate delay in final completion of the WORK.
- 3.322 Should CONTRACTOR fail to perform the WORK at a rate which in the opinion of WAHA will assure completion by the completion date determined by the CONTRACTOR, WAHA may employ its own personnel and/or equipment or that of a third party to assist in completing the WORK. The cost of such assistance shall be computed at the CONTRACT price therefor if specified in the CONTRACT, otherwise at WAHA'S cost and shall be deducted from the total CONTRACT price. If the cost to WAHA for such assistance exceeds the total amount accruing to CONTRACTOR when added to other payments due or to become due to CONTRACTOR the difference shall be paid by CONTRACTOR to WAHA.

#### 3.330 WAHA TAKEOVER RIGHTS

- 3.331 Any omission, default, or failure by CONTRACTOR to comply with any provision of the CONTRACT which, in the sole judgement of WAHA, constitutes a substantial omission, failure or default shall entitle WAHA, without prejudice to its recourse to any other right or remedy, to notify CONTRACTOR by three (3) days' notice in writing to discontinue the WORK or any part thereof. Following expiration of the aforesaid three (3) days' notice period, WAHA shall have the right to embark upon and to complete the WORK or such part thereof as WAHA may deem expedient, at the sole expense of CONTRACTOR as hereinafter provided.
- 3.332 In case of such discontinuance, CONTRACTOR shall not be entitled to receive any further payments due or to become due to CONTRACTOR for work performed until all of the WORK is completed. In the event that the expense of completing the WORK shall exceed the amount which would otherwise have been payable had the WORK been completed by CONTRACTOR, CONTRACTOR shall pay the amount of such difference to WAHA. In the event that such expense is less than the amount which would have been payable to CONTRACTOR had the work been completed by CONTRACTOR in accordance with the CONTRACT, CONTRACTOR shall be entitled to such difference provided that all expenses, claims and damages shall have been settled to WAHA'S satisfaction.

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- 3.333 In computing the cost of completion in case WAHA proceeds under the terms of sub-section 3.332 above, WAHA personnel costs and overhead allocable to the WORK involved shall be given full weight and consideration.
- 3.344 Without limitation of alternative action, WAHA is expressly authorized to assert its rights under any surety bond or bank guaranty, provided pursuant to the CONTRACT, for the purpose of this Section 3.330.

#### 3.340 CANCELLATION (FASKH) OF CONTRACT IN EVENT OF DEFAULT

- 3.341 Either party hereto shall have the right, at any time, to cancel the CONTRACT for any omission, default or failure by the other party amounting to a material breach thereof upon written notice to such other party reciting therein the reasons for such cancellation.
- 3.342 It is expressly agreed that in the event a party exercises the foregoing right of cancellation, the said party may cancel the CONTRACT <u>without</u> the necessity of fulfilling any judicial formality with respect thereto including, specifically:

service of formal notice as provided in the Civil Code of Libya including Articles 159 and 160 thereof or obtaining a Court Order ratifying or decreeing cancellation of the CONTRACT

provided, however, that nothing herein contained shall relieve a party of the duty to give the other party written notice of cancellation as specified in subsection 3.341 above.

3.343 If WAHA exercises the right herein granted to cancel the CONTRACT, it is expressly agreed that WAHA shall be authorized to assert its rights under any surety bond or bank guaranty provided pursuant to the CONTRACT for the purpose of this Section 3.340.

#### 3.350 CONFLICT OF INTERESTS - WARRANTY

3.351 CONTRACTOR warrants that it is not aware of any conflict of interest situation with respect to the CONTRACT, except as expressly set out in writing personally delivered to WAHA prior to the date of the Agreement.

#### 3.360 FORCE MAJEURE

- 3.361 If either party to the CONTRACT is unable to comply with the terms thereof by reason of force majeure, namely any cause or event reasonably beyond the control of either party, then such party shall be excused from complying with the CONTRACT during the existence of such force majeure and for such period of time after cessation thereof as may be reasonably necessary to re-activate performance hereunder.
- 3.362 Any party desiring to be excused from performance hereunder by reason of force majeure shall give to the other party immediate actual notice and as

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soon thereafter as possible shall give formal written notice specifying in detail the force majeure claimed and the effective date of suspension.

#### 3.370 SHUTDOWN DUE TO STRIKE OR LABOR DISPUTE

3.371 WAHA shall not be liable to CONTRACTOR for any cost or expense suffered by CONTRACTOR as a result of suspension of the WORK due to strike, boycott, picketing, labor dispute, or similar or related circumstances.

#### 3.380 CONTRACT NOT EXCLUSIVE

3.381 WAHA reserves the right to employ other persons and contractors for similar or other work and CONTRACTOR shall afford all reasonable opportunities to such other persons and contractors for discharging their respective responsibilities.

#### 3.390 WAIVER OR DELAY IN EXERCISING RIGHTS BY WAHA

3.391 The waiver by WAHA of a breach of default by CONTRACTOR of any provision of this CONTRACT shall not be construed as a waiver by WAHA of any succeeding breach of the same or other provisions, nor shall any delay or failure on the part of WAHA to exercise or avail itself of any right, power, or privilege that it has or may have hereunder operate as a waiver of any such breach or default.

#### 3.400 CONTRACT IS ENTIRE UNDERSTANDING

3.401 The CONTRACT as defined in Section 3.005 hereof embodies the entire agreement between the parties. Neither party shall assert that it had any understanding inconsistent with or which goes beyond or falls short of any provision contained in the CONTRACT. No change in the terms of the CONTRACT shall be effective as to either party hereto unless agreed to in writing by both parties.

#### 3.410 PERSONS BOUND

3.411 The CONTRACT shall be binding upon and shall insure to the benefit of WAHA and CONTRACTOR and the respective successors, assigns and personal representatives, if any, of each, subject however to the conditions upon assignment, subletting and subcontracting by CONTRACTOR stated in Section 3.270 hereof.

#### 3.420 CAPTIONS OF ARTICLES

3.421 The captions of the respective sections of these CONDITIONS are inserted solely for the purpose of convenience and shall not be construed to confine, limit or describe the scope of the CONTRACT or the intent of any provision thereof.

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ITEM NO.	DESCRIPTION		
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В	ATTACHMENT-I: WAHA DRAFTING REQUIREMENTS		

#### **SPECIFICATIONS**

#### 4.000 GENERAL

4.001 For the sludge processing work of the open-air pits as described in this bid docun WAHA is seeking from the experienced CONTRACTOR the latest in the field of crud sludge processing to ensure an efficient oil for sale recovery process and other products that are required to be environmentally friendly and safe for further handling disposal.

WAHA does not have standing procedures and/or specifications of its own that technic describe the required crude sludge processing activities but will rely on the experier CONTRACTOR's established procedures and/or specifications for these purposes. A any of the work(s) on any of these pits shall not violate any of the requirement established applicable procedures in this field.

Notwithstanding, however, WAHA shall critically review any and all of such proced to ensure their worth and suitability for the intended work. WAHA shall approve a procedures before they can be implemented. Approval by WAHA, however, shall relieve the CONTRACTOR from his ultimate responsibility for the satisfactory professional execution of the work through out all phases of the intended slaprocessing work to its final conclusion and handover to WAHA.

4.002 All equipment, machines, tools, related accessories, etc. to be supplied by CONTRACTOR for the execution of the work shall be in compliance with correspond standards, codes, and related manufacturer instructions as applicable.

#### 4.100 OPEN AIR SLUDGE PITS

4.101 WAHA has five (5) open-air earthen oily water pits at the periphery of the tank farm one of them is virtually dry. Based on preliminary rough field observations measurements as far as possible, the total estimated sludge quantity in these pits is at 450,000 barrels. Oil to water ratio in these pits is not known but, as it is usual with s pits, the bulk content is water with an oil layer floating on the surface.

#### 4.200 SLUDGE MEASUREMENT AND COMPOSITION

4.201 It is the CONTRACTOR's responsibility to take site measurements as he deems necess to ascertain the <u>quantities</u> and <u>composition</u> of sludge in-situ. Measured quantities composition are to be approved by WAHA before they can be taken as basis for paym time durations, or other contractual requirements.

#### A. Drawings Provided by WAHA

The following WAHA drawings are herewith attached:

1. DWG. NO. 16173T-AA-199 Rev. 15 (Plot Plan, Tank Farm Area, Es-Sider).

Bid Document: Technical (S-V)

#### B. ATTACHMENT-I: WAHA Drafting Requirements

Any new drawings that may be required to be made shall conform to WAHA drafting requirements as detailed in the attached **Drafting Requirements for Contractor/Vendor (DOCUMENT No. ENG-PJ-D-SP-0001-Rev. 0).** 

# WAHA OIL COMPANY DRAFTING REQUIREMENTS FOR CONTRACTOR / VENDOR



# DOCUMENT No. ENG-PJ-D-SP-0001 (Document previously issued as Draft-001)

Rev. No.	Date	Description	Issued By	Endorsed By	Appr'd By
0	Sept 2004	Issued as Company Standard	RGS	MK	SBO

	1	Approved Waha OU Company
ISSUED	Signature valid	r Document
		Rev.0

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# WAHA OIL COMPANY DRAFTING REQUIREMENTS FOR

#### CONTRACTOR / VENDOR

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- 2.0 Documents to be drafted by Contractor
- 3.0 Documents to be drafted by Vendor
- 4.0 General Drafting Practice
  - 4.1 General Practices
  - 4.2 Waha Standard Autocad Practice
  - 4.3 Drawing Numbering

#### 5.0 Transmittal of Final Drawings

- 5.1 Transmittal of Drawings
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#### Appendix A

Requirements particular to Civil drawings

#### Appendix B

Requirements particular to Electrical drawings

#### Appendix C

Requirements particular to Mechanical drawings

#### Appendix D

Requirements particular to Instrument drawings

#### Appendix E

**Drawing Title Block** 

#### **Attachments**

- 1. 4000-CA-1023 CAD Numbering for WAHA Record (As-Built) Drawings
- 2. 4000-AA-1025 WAHA Layering System
- 3. 4000-CA-1026 CAD Numbering for Vendor Drawings
- 4. 4000-CA-1027 CAD Numbering for Multiple Sheet Drawings
- 5. 4000-CA-1029 CAD Numbering for WAHA Project Drawings

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# 1. WAHA OIL COMPANY DRAFTING REQUIREMENTS (INSTRUCTIONS TO CONTRACTOR/VENDOR)

#### 1.0 GENERAL

As part of this scope of work the CONTRACTOR/VENDOR shall be responsible for producing drawings including general arrangements, layouts, piping and instrument diagrams, single line diagrams, as-builts, etc.

Detailed explanations by discipline are defined in Appendix "A", Civil; Appendix "B", Electrical; Appendix "C", Mechanical and Appendix "D", Instrument.

The drafting requirements in this document shall be adhered to from project inception to submission of as-builts.

All CADD generated drawings shall be drafted using AUTOCAD. All supporting files (e.g., MNU and MACRO files, SHAPE files etc.) used by the CONTRACTOR shall be issued to Waha Oil Company on disk.

Any CADD package can be used but it MUST be ACAD driven, WAHA Oil Company are to be supplied with drawings that can be plotted or edited without having to carry out any conversions.

The Contractor is to confirm the system and the version of their CADD package prior to the start of any project and get agreement from Waha Oil Company.

#### 2.0 DOCUMENTS TO BE DRAFTED BY CONTRACTOR

- 2.1 All drawings shall be prepared by the Contractor in WAHA Standard Format:
- 2.2 If a CONTRACTOR is responsible for producing "As-Built" drawings for drawings he did not originally produce, the following applies:
  - 2.2.1 WAHA shall supply in disk form when available, or mylars if drawn by hand, the drawings concerned. The CONTRACTOR shall retain these for any work he may wish to carry out on the drawings.
  - 2.2.2 The CONTRACTOR shall be responsible for producing any prints required to be used for mark-up purposes.
  - 2.2.3 Where applicable, CONTRACTOR shall quote optional unit prices to scan any existing drawings on mylar for converting into AUTOCAD format prior to incorporating "As-Built" changes.

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- 2.2.4 CONTRACTOR is responsible at all times for the original drawings while they are in his possession. In the event of an original being lost or destroyed while in the CONTRACTORS possession he is responsible for redrafting that original to WAHA's requirements.
- 2.2.5 The drawings shall be designated as "As-Built" in the revision table and not marked elsewhere on the drawing.
- 2.2.6 On completion of the As-Built drawings, the CONTRACTOR shall supply WAHA with a full set of drawings on disk and one set of 17" x 11" photo reproducible drawings on mylar and the original mylars where applicable. (see section 5.0)
- 2.3 Drawings supplied to WAHA shall be in the following format:
  - 2.3.1 For all CADD drawings CONTRACTOR shall supply WAHA with drawings on 3.5" HD format floppy disks, CDs, an Iomega Jaz Drive or an IDE 3.5" hard disk.
  - 2.3.2 Only a single discipline may be stored on each 3.5" HD format floppy disk.
  - 2.3.3 All drawings shall be stored so that each drawing can be retrieved individually irrespective of other files or disks having read errors.
  - 2.3.4 Data compression can be used to minimise the disk count but WAHA shall be informed to confirm whether WAHA have a means of decompressing such data.
  - 2.3.5 One disk can only contain drawing files from one project. If more than one disk is needed, disk label shall also show series number.
  - 2.3.6 All 3.5" HD format floppy disks shall be supplied in duplicate.
  - 2.3.7 In the event that the number of floppy disks is greater than 30 (60 including duplicates), WAHA require all data to be sent on an IDE 3.5" hard disk of appropriate size, CDs, or an Iomega Jaz Drive.
  - 2.3.8 The original packing used by the hard disk manufacturer if available must be saved and reused for shipping.
  - 2.3.9 When drawings supplied by a VENDOR via the CONTRACTOR to WAHA, the drawing should have a foreign print number (see section 4.3.5). WAHA is responsible for designating the number but CONTRACTOR is responsible for affixing the number to these drawings.
  - 2.3.10 Initially the CONTRACTOR shall supply WAHA with a number of prints of each drawing of the project, quantity, as requested in the bid document. These

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drawings are for WAHA'S comments and final approval. These drawings will be reviewed by WAHA and after an authorised signature has been added to the "Approved without Comment" section, the drawing shall be returned to the CONTRACTOR who can then mark up his original drawing as "REV.0 - ISSUED FOR CONSTRUCTION" in the revision column.

#### 3.0 DOCUMENTS TO BE DRAFTED BY VENDOR

3.1 WHERE VENDOR/MANUFACTURER IS SUPPLYING DRAWINGS TO WAHA THROUGH A CONTRACTOR.

The following guidelines shall be followed regarding the submittal of drawings.

- 3.1.1 Drawings to be drafted by VENDOR/MANUFACTURER are those not covered under Section 2.1. In general these drawings will be equipment packages, details, data sheets, operating manuals etc., and are classified as not requiring revision.
- 3.1.2 Initially the VENDOR/MANUFACTURER shall supply WAHA/CONTRACTOR with a number of prints of each drawing of the equipment, quantity, as requested in the bid document. These drawings are for WAHA'S/CONTRACTORS comments and final approval.
- 3.1.3 These drawings will be reviewed by WAHA/CONTRACTOR and after an authorised signature has been added to the "Approved without Comment" section, the drawing shall be returned to the VENDOR/ MANUFACTURER who can then mark up his original drawing as "REV.0 ISSUED FOR CONSTRUCTION" in the revision column and proceed with manufacture.
- 3.1.4 The CONTRACTOR should ensure that the VENDOR/MANUFACTURER shall supply WAHA/CONTRACTOR with drawings in CADD format using AUTOCAD.
- 3.1.5 When the VENDOR/MANUFACTURER has completed construction of his package, he shall supply WAHA/CONTRACTOR with a full set of 17" x 11" photo-reduced reproducibles on mylar. These drawings shall show "REV.1 AS BUILT" in the revision column. If they are supplied to the CONTRACTOR he shall incorporate them in the bound book form package he is supplying to WAHA.
- 3.1.6 If the VENDOR/MANUFACTURER is unable to supply the 17" x 11" photo reproducibles then the CONTRACTOR shall be responsible for supplying them.
- 3.1.7 When originals are supplied to CONTRACTOR the drawing should have a foreign print number (see SECTION 4.3.5. and 4.3.6.) WAHA is responsible for designating the number but the CONTRACTOR is responsible for affixing the number to these drawings.

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3.2 WHERE VENDOR/MANUFACTURER IS SUPPLYING DRAWINGS DIRECT TO WAHA.

The guidelines that shall be followed regarding the submittal of drawings are those referred to in Waha's Specification No. ENG-PJ-D-SP-0002, Drafting Requirements for Vendor / Manufacturer supplying Waha direct.

#### 4.0 GENERAL DRAFTING PRACTICE

- 4.1 CONTRACTOR/VENDOR shall adhere strictly to the following general drafting practices while preparing drawings.
  - 4.1.1. CONTRACTOR/VENDOR is responsible for submitting drawings with legible writing in English. Drawings with Arabic writing shall be acceptable but only with prior permission from WAHA. Any such drawings made that do not meet this requirement shall not be acceptable to WAHA.

#### 4.1.2. Revisions

Revisions to a drawing shall be highlighted inside a 'cloud' with the appropriate revision number inside a triangle. This revision triangle is inserted into the drawing, at the relevant drawing scale, as a block named "REV.DWG". This block can be found on the disk issued by WAHA to CONTRACTORS. (4.1.12.)

The only exception to this is when a drawing is issued to show "AS BUILT".

#### 4.1.3. Designation of Views

The American projection method shall be followed. Sections elevations and other views shall be identified by letter designations. Each type of view shall have its own group of letters starting with the letter "A". It is possible to have section "A-A", elevation "A" and view "A" on the same drawing. General details shall be identified by numbers only.

# 4.1.4. <u>Drawing to Scale</u>

All drawings shall be drafted to scale. Piping layouts, sections, etc. to be drafted to a scale of 3/8" represents 1 foot unless there is a valid reason to the contrary. Any deviation must have WAHA approval. All other drawings are to be drafted to a scale, preferably metric, that, allows all the relevant information to be shown on one drawing, if possible, in a clear and concise manner. On Imperial scale drawings equivalent Metric dimensions may be given (in mm) in brackets under the Imperial dimensions.

Where Metric scales are used all dimensions shall be stated in mm, except for longitudinal sections on survey or pipeline drawings. Elevations shall be expressed in metres and decimals. Equivalent Imperial dimensions may be given in brackets. Incorporating both Metric and Imperial scales on one drawing IS NOT acceptable to WAHA.

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ENG-PJ-D-SP-0001.doc

#### 4.1.5. Scales

On the bottom right hand side of the drawing a bar scale shall be shown depicting the scale or scales used on the drawing. This simplifies scaling from the 17" by 11" photo-reduced drawings.

#### 4.1.6. Piping Isometrics

If required, isometrics shall be drafted on WAHA isometric sheet supplied by Waha on disk (4.1.12) and numbered as described in 4.3.3.

#### 4.1.7. North Arrows

The WAHA standard North Arrow symbol shall be used for all drawings. The arrow shall appear in a prominent place in the upper region of the drawing and shall never point down. This North Arrow is inserted into the drawing, at the relevant drawing scale, as a block named "NORTH.DWG". This block can be found on the disk issued by WAHA to CONTRACTORS. (4.1.12.)

#### 4.1.8. Matchlines

Where a drawing has matchlines the drawing shall state clearly all the information required to locate the adjoining drawings, i.e. project number, drawing number and Northing or Easting.

#### 4.1.9. Reference Drawings

All relevant reference drawings shall be listed in the reference drawing table provided.

#### 4.1.10. Symbols and Abbreviations

All symbols and abbreviations used on drawings shall be those shown in the WAHA Symbols and Abbreviations Standards ENG-PJ-D-SP-0003. Alternatively the CONTRACTOR may submit his own symbols and abbreviations for approval by WAHA prior to the start of a project. In the case of a VENDOR where no symbols or abbreviations are listed, ISA, IEEE and ANSI symbols and abbreviations shall be used.

#### 4.1.11. General

CONTRACTOR/VENDOR shall at all times segregate one discipline of drawing from another. Inter-mixing of mechanical details, electrical, and civil on one drawing is unacceptable to WAHA.

4.1.12 CADD generated drawings shall adhere strictly to WAHA's standard AUTOCAD practices. To ensure that the Contractor complies with the WAHA Drafting Requirements, Waha shall furnish the Contractor in disk form with the following:

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- 34 34-														
		Hydro	carbor	ı Reco	very			Basic	<del></del>	Typical	Tank S	Schedu	ıle	<del></del>
500,0 <b>00</b> bbl tank	1	M dep	th of s	ludge	in tank					M3 slud				
	J		nt reco							bbl of h				
	150	bbl pe	r hour	recov	ery rate	· ·			8.3	days to	recove	r hydro	ocarbo	<u>n</u>
Item	day	day	day	day	day	day	day	day	day	day	day	day	day	day
description	1,2	3,4	5,6	7,8				15,16		19,20	21/22		1	27,28
move to site														
set up equip- 3 mixers														
reduce sludge above manway					e government									
recover hydrocarbon														
disassemble equip														
move off site														
Note- Does not include- residu	e remov	al from	tank											
	sport of re													
- envii	ronmenta	al treatr	nent ar	nd disp	osal of	residue	<del>)</del>	1			-			
Red indicates typical days "i										<del></del>				
initial period to achieve circu										there tan	k			
stands idle to permit remain	ing wate	r and s	iolids	lo sett	le out, '	Tank is	s not "	out of s	service"					
Blue indicates mobilization,	set-up/d	isasse	mble e	quipn	ient an	d dem	obiliza	tion						

1,000

Bid Document: Commercial-Unpriced R1

# WAHA OIL COMPANY TRIPOLI - LIBYA

# BID DOCUMENT (COMMERCIAL PART - UNPRICED)

**FOR** 

OPEN-AIR DRAIN PITS SLUDGE PROCESSING
AT ES-SIDER TERMINAL CRUDE OIL STORAGE TANK FARM

Control of the Control of Control of the Control of

# **PRICING**

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FIEM NO.	DESCRIPTION	
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# **PRICING**

# <u>IMPORTANT NOTE</u>: ALL COMMERCIAL TERMS AND CONDITIONS SHALL BE ENTERED INTO THIS PART ONLY.

#### 1.000 METHOD AND CURRENCY OF PAYMENT

1.001 Unless otherwise provided, all amounts due on work progress invoices will be paid in checks payable in US DOLLARS.

#### 2.000 PRICING FORMAT

- 2.001 Bid Price: CONTRACTOR shall base his bid on the assumption that the total sludge quantity in all the five open-air sludge pits is 450,000 barrels and shall offer his bid price as per the attached <u>FORM-I: SLUDGE PROCESSING PRICE</u>. Payments, however, shall be based on <u>actual field measurements of sludge quantities</u> to be approved by WAHA.
- 2.002 Payments for variation orders or out of scope work items that may be requested by WAHA from time to time shall be calculated based on the unit rates to be entered by the CONTRACTOR as per the following forms:

#### **FORM-II: MANPOWER WAGES**

CONTRACTOR shall fill the blanks as per details given in the attached format.

#### FORM-III: EQUIPMENT AND PLANT RENTAL RATES

CONTRACTOR shall fill the blanks as per details given in the attached format.

2.003 (a)	FORM-I: SLUDGE PROCESSING COST						
	CLASSIFICATION	PRICE (US \$)					
	Sludge processing as it exists in all the open-air pits	All sludge in all pits (Note 2)	One barrel of sludge				
	(Note 1)						
	Notes						
55.00 10.00	1. Refer to item 2.400 of Section II of the Bid Document (Technical Part) for						
क्षांत्रीय कर प्रेम्म्स्य स्थापन	description submission. Desludging Procedures implementation.	shall be approved l	by WAHA prior to				
	2. Refer to item 2.000 of the Bid Document (Commercial Part: Unpriced and Priced) and to						
	item 2.300 of Section II of the Bid Document (Tea	chnical Part).					

2.003 (b)	FORM-II: MANPOWER WAGES (Note 4)						
		R	ATE (US \$)				
	CLASSIFICATION	Hour	Day (8 hours per day)				
			·				
- <del> </del>							
	Notes 1. CONTRACTOR shall list all manpower trades to the execution of the work.	that he judge	s necessary for				
	2. CONTRACTOR shall provide all trades in suf successful and timely completion of the work.		er to ensure a				
	<ol> <li>Overtime rates shall be equal to the normal rates</li> <li>To be used in calculating payments for vascope work items that may be requested by V</li> </ol>	riation ord	i				

3 (c)	FORM-III: EQUIPMENT AND PLANT RENTAL RATES (Note 5)						
	CLASSIFICATION	Hour	Day (8 hours per day)				
- 1	tes .		_				
1.	CONTRACTOR shall list all equipment and plant t the execution of the work.	hat he judge	s necessary for				
2.	All equipment and plant shall be in structural acceptable to WAHA with all applicable valid license at all times during the work. All equipment and p (e.g. cranes) shall have its certification valid at all times	s and registi lant requiri	rations in order ng certification				
3.	CONTRACTOR shall provide all equipment and planensure a successful and timely completion of the world	nt in quantit					
1	Overtime rates shall be equal to the normal rates.  To be used in calculating payments for variation	n orders o	r out of scope				
	work items that may be requested by WAHA from		-				

MAIN J-5 BOTTOM DESK DRAWER 8-5-09 0911 HRS JUB

AL AMAQ /307/08

سجل تجاريب: 182/21 غرضة تجارية: 02604

الساريخ : 80/12/14

To: ISLAND OIL ENVIRONMENTAL SERVICES

Attn: Mr. BRENT KARTCHNER CHAIRMAN

**Subject: AL AMAQ COMPANY PROFILE** 

Dear Sir.

It is our pleasure to introduce AL AMAQ HOLDING COMPANY, a fully registered Libyan company and had been establish to provide its best services in the Oil & Gas industry and Construction business furthermore, we are very well connected with the Oil & Gas companies in Libya.

AL AMAQ HOLDING COMPANY entered in a joint venture agreement with several international companies specialized in various activities in Oil and Gas services including turn – key projects, as follows:

- 1. Marine Industry & Engineering
- 2. All Construction activities
- 3. Electricity projects
- 4. Heavy weight land transportation
- 5. Environmental projects
- 6. Pipeline supply & construction

- 7. Infrared Inspection
- 8. Predictive maintenance
- 9. Drilling & Work over and maintenance activities and well service
- 10. All kind of Oil & Gas Spare parts
- 11. Hydrocarbon recovery & Tank Cleaning

Following is a list of companies entered in a Joint Venture with AL AMAQ:

- Sidra Dredging, Marine and Environmental Contractor (Italian Nationality)
- Arak Industrial Equipment for all the electrical equipment (U.S.A) Libyan Branch; in corporation with Al Amag
- Wellstream Manufacturing of Spoolable Pipeline Solutions (U.S.A)
- Bentini Spa Oil & Gas Construction Company (Italian Nationality); on final stage of joint venture agreement with Al Amaq
- Libyan Alrahila Co. Heavy weight land transportation; Our partner
- Al Abnia Construction company; Our partner
- Triply Italian procurement manufacturer of equipment for Oil & Gas; in corporation with AI Amag
- American Petroleum Consortium Drilling company; in corporation with Al Amaq
- COSL Chinese Oil Service company; in corporation with Al Amag
- Blancon Spanish Co. for Oil pit cleaning & Oil sludge treatment; in corporation with Al Amaq.
- Dupont Chemical Supply; in corporation with Al Amaq
- Pescagel Italian Fishing Co.; in corporation with Al Amaq
- Island Oil Environmental Services Houston, Texas USA; in corporation with Al Amaq.

Should you have any further inquiries or questions please don't hesitate to contact us.

Best regards,

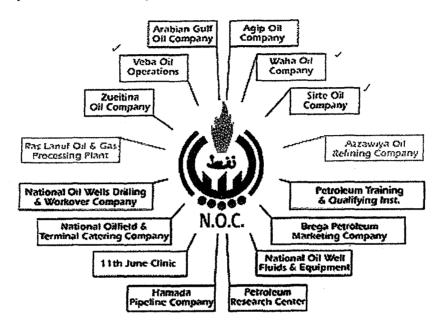
Eng. Fawzi Madi Managing Director

شارع مدينة صالح محى الاندلس مقرقارش طراءلس مابدية

ON ALL PITY OF TRAVER AND RELIGIO PARIO ARDO ARDO EDIDOTE FIRMA. THE FORES OF A FORMO 1804 AND ARM BOVE 1949 OF A FORESTS



Azzawiya Oil Refining Company (ARC) a wholly owned subsidiary of Nation Oil Corporation (NOC) and is incorporated under Libyan Commercial Law since 1976.



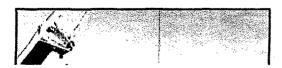
#### **Head Office**

The Head Office of ARC is located about 45 Km West of Capital City Tripoli. It is the first Refinery of NOC and was built by Snamprogetti, Italy. It was inaugurated by revolution leader Colonel Mummer El-Quaddafi on First of Al-Fateh (September) 1974.

As per decision 30/1976 of NOC, ARC was established as an incorporated company of Libya registered under No. 1572 with effect from 16/09/1976.

It started production with a nameplate capacity of 60,000 BPSD and in 1977, production capacity was doubled to 120,000 BPSD. It was designed to produce products to meet latest specifications of International Standards. It is also equipped to maintain strict air and water quality standards as enforced in other developed countries.

In addition to this, Refinery is supplied with all associated units for utility needs like generation of power, steam production via boilers, desalination units and air compressors and vast tankfarm for storing crude oil, intermediate and finished products.



http://www.azzawiyaoil.com/abaot us.htm

12/2/2008

Roland
832-12e2
3562325

203 N

109 Wisconsin
Leasur City, FR

72523



# OIL PIT CLEANING

# VEBA OIL OPERATIONS B.V., LIBYAN BRANCH

G.S.P.L.A.J.

### INVITATION TO BID

#### OIL PIT CLEANING

#### GREAT SOCIALIST PEOPLE'S LIBYAN ARAB JAMAHIRIYA

#### Gentlemen:

You are cordially invited to submit quotations for the OIL PIT CLEANAING for Veba Oil Pit's at different Field locations, as described in the Scope of Work, and Schedules 'A' and 'B' attached.

The following instructions shall be noted:

1. Bids shall be presented by reputable Contractor only upon solicitation by Veba Oil Operations B.V. Libyan Branch (VOO). VOO reserves the right to reject any or all bids without giving any reason whatsoever for such action. Only written bids in sealed envelopes will be considered. The Form of Tender is to be completed in full.

#### 2. Preamble:

CONTRACTOR (Bidder) is required to visit the sites and scrutinize the physical conditions at and around the site of work. It is vital that CONTRACTOR (Bidder) carries out the necessary site survey, assessment of sludge accumulations and associated soils damaged. Collect data samples at the sludge for chemical analysis in order to determine the available clean up / recovery options available.

Based upon CONTRACTOR'S (Bidder's) findings CONTRACTOR will be able to submit it's firm offer together with a method statement identifying means by which the scope of work will be achieved. Factors mentioned in item 5.1.1 - 5.1.9 should be addressed in the CONTRACTOR's tender proposal

CONTRACTOR'S (Bidder's) proposal will be considered on both technical and commercial grounds in competition with other bidders offered proposals, CONTRACTOR (Bidder) is therefore encouraged to fully consider it's site findings before preparing it's method statement and offer. It is intended that Bidders Method Statement will be incorporated into the contract to be awarded to the successful Bidder

3. If, after the attached Scope of Work has been presented to the prospective Contractor, any prospective Contractor finds any omissions or discrepancies in the Scope of Work, or should there be any doubt as to the meaning and intent of any portion of the Scope of work then clarification shall be requested from the Secretary, Suppliers and Consultants Awards Committee, VOO Tripoli Office. Upon receipt of any such requests, VOO shall provide an answer in writing, which will, if necessary, be circulated to all those from whom bids have been solicited. Please note that if you have any comments – technical, commercial or contractual – regarding the Contract or the Bid Package, these should be raised with SAC Committee prior to the Contract being awarded. Once the letter of award has been forwarded to the Contractor, no change or variation to the bid offer or

Contract will be accepted. The successful Contractor will be notified to collect the Contract for signature in due course.

4. Bids are to be submitted by hand to Veba Oil Operations B.V. Libyan Branch, P.O. Box 690, Tripoli, G.S.P.L.A.J., Attention: Secretary, Suppliers and Consultants Award Committee, Room 528.

Said bids are to be signed, completed in ink and presented in a sealed envelope/package. The envelope/package shall be clearly and conspicuously marked - Quotation for VOO. OIL PIT CLEANING

In addition to the original tender, one duplicate marked 'Copy' shall also be submitted as noted above.

- 5. If bidders are required to respond to clarifications raised by VOO's Engineering Department Manager after bid submission, then such responses shall be answered as follows:
  - a. When a clarification involves a technical aspect, which has no commercial or contractual implications, the answer shall be by a single telex/fax or letter.
  - b. When a clarification involves contractual or commercial aspects only, the answer shall be by a single sealed letter.
  - c. When a clarification involves a technical aspect which has a contractual or commercial impact, then the answer shall be via two separate sealed letters as follows:
    - i. Sealed letter No. 1 shall be marked Part A. This answer shall involve technical matters only and shall make cross-reference only to simultaneous letter Part B, which advises separately of the Contractual or Commercial aspects.
    - ii. Sealed letter No. 2 shall be marked Part B. This answer shall involve contractual and commercial matters only and shall make cross reference to simultaneous letter Part A, which pertains to the Technical answer.
  - d. In such cases, letters Nos. 1 & 2 shall be submitted at the same date and time to the Secretary, Suppliers and Contracts Awards Committee.
- 6. A sample copy of the bi-lingual contract is enclosed with the Scope of Work for Consultant's perusal and is intended to be adopted for these works.
- 7. Contractor's quotation shall be returned in the form above mentioned on or before
- 8. VOO shall notify the successful Contractor by telephone or telex/fax from Tripoli. A confirming letter will also be sent to the successful Contractor. All unsuccessful Contractors will be notified by telephone or telex/fax at this time.
- 9. Your attention is drawn to the general third party, public and property liability insurance requirements. A copy of your current general insurance policies is required to be deposited with

#### OIL PIT CLEANING

#### FORM OF TENDER

Date:

Veba Oil Operations B.V, Libyan Branch P.O.Box 690 Tripoli G.S.P.L.A.J.

Attn.: Mr.M.Tailmoun, Secretary, SAC Committee

#### Gentleman

All Locations together:
Foreign Currency Lump Sum
Libyan Dinar Lump Sum
Individually:
Ras Lanuf Tank Farm and Terminal
Foreign Currency Lump Sum
Libyan Dinar Lump Sum
Amal Field (including all Stations)
Foreign Currency Lump Sum
Libyan Dinar Lump Sum
Ghani Field (Include Ghani, Zenasd, Tagrifet, Facha and Jofra Stations)
Foreign Currency Lump Sum
Libyan Dinar Lump Sum

# OIL PIT CLEANING

# FACT SHEET

NAME OF COMPANY:	
REGISTRED ADDRESS:	
POSTAL ADDRESS: (if different)	
OFFICE ADDRESS IN TRIPOLI:	
TRIPOLI OFFICE TELEPHONE NO:	
COMPANY OWNERSHIP: (NAME AND PERCENTAGE OF INTEREST)	
LIBYAN REGISTRATION NO:	
TYPE OF WORK COMPANY PERFORMS:	

# تنظيف احواض الزيت الترابية

# CONTRACT OIL PIT CLEANING

THIS Contract is made and entered into in Tripoli, Great Socialist People's Libyan Arab Jamahiriya (G.S.P.L.A.J.) by and between VEBA OIL OPERATIONS B.V. Libyan Branch, represented by Dr. ABDUSALAM MILAD RABAE, Chairman of Management Committee, hereinafter referred to as COMPANY and With Commercial Registration no , at address , libya represented in this Contract by , hereinafter referred to as CONTRACTOR.

WHEREAS COMPANY requires performing OIL PIT CLEANING in the manner specified in this Contract and hereinafter referred to as the WORK; and,

WHEREAS CONTRACTOR warrants that he is ready, willing and able to perform such Work and has full knowledge of the conditions under which such work will be performed; and

WHEREAS CONTRACTOR warrants that he is registered and duly qualified to perform the WORK, specified herein, in the Great Socialist People's Libyan Arab Jamahiriya.

NOW, THEREFORE, each in consideration of the covenants and undertakings herein contained, COMPANY and CONTRACTOR agree as follows:

- 1. This Contract shall become effective as of the date of COMPANY signature page 14 and shall continue in effect until the WORK under this Contract is completed as specified in Schedules 'A'. and, 'B', attached hereto and made as an integral part thereof, unless terminated as hereinafter provided. CONTRACTOR shall commence the WORK not later than 30 days from the date of signing the Contract or from the date of handover of the site by COMPANY (whichever date is the later).
- 2. The Contractor undertakes to execute the work stated in this Contract and which is confined to the following:

Reclamation and cleaning of oil disposal pits

The appendices and, specifications attached to this Contract and specified by reference show complete details of the work to be carried out under this Contract. The said appendices, schedules, exhibits and designs shall constitute an integral part of the complete Contract.

 CONTRACTOR undertakes to perform the WORK to the satisfaction of COMPANY and in accordance with drawings specifications, and other requirements set forth in schedules and exhibits attached to this Contract أبرم هذا العقد بمدينسة طرابلس بالجماهرية العربية اللبية الشعبية الاشتراكية العظمى ما بين كل من شركة فيبا للعمليات النفطية ب ف فرع ليسيا ويمثلها الأخ / د. عبد السلام ميلاد الرباع رئيس لجنة الادارة ، ويشار إليها فيما بعد (بالشركسية). وشركة سجل تجارى رقم صندوق بريد ويمثلها في هذا العقد اويشار إليها فيما بعد (بالمقاول).

وبمسا أن الشركة تعتزم تنفيذ مشروع تنظيف احواض الزيت التوابية على النحو الميين في هذا العقد ويشار اليه فيما بعد بالعمل).

وحيث أن المقاول يتعهد صراحة وضمنا هنا أنه على استعداد ولديسه الرغبسة والإمكانيات اللازمة والخبرة اللازمة لإنجاز هذا العمل

وحيث أن المقاول يؤكد على أنه مسجل ومؤهل تماما لأداء العمل المبين في هذا العقد بالجماهيرية العربية الليبية الشعبية الاشتراكية العظمي

وعليه ووفاء بالاتفاقات والتعهدات المتضمنة في هذا العقد اتفقت الشركة والمقاول على الاتى :

مادة 1- يبدأ سريان هذا العقد من تاريخ توقيعه من الشركة بالصفحة رقم 14 ويسرى مفعوله لغاية تاريخ إنجاز العمل المتعاقد عليه كما هو موضح بالمادة (2) والجداول " أ ، ، ب ، المرفق بهذا العقد والذي يعتبر جزءاً لا يتجزأ منه ما لم ينهى حسب ما ينص عليه فيما بعد يشرع المقاول في العمل في مدة أقصاها 30 يوماً من تاريخ توقيع العقد او من تسليم الموقع من قبل الشركة (ايهما اخيرا).

مادة 2- يتعهد المقاول بتنفيذ العمل المذكور في هذا العقد والذي ينحصر في:

اعادة وتنظيف اثنين من احواض الزيت بمنطقة راس لانوف

الملحقات والمواصفات والرسومات المرفقة بهذا العقد والمحددة بالأرقام توضح بالتفصيل الكامل العمل المزمع تتفيذه بموجب هذا العقد . وتعتبر الملحقسات والمواصفات المشار إليها أعلاه جزءاً لا يتجزأ من العقد المبرم.

مادة 3 — يتعهد المقاول بأداء العمل بالطريقة التي تقبلها الشركة وطبقا للتصاميم والمواصفات والمتطلبات الأخرى المبينة في الجدول أو الملحقات ذات الأرقام والمرفق في هذا العقد .

- CONTRACTOR shall comply fully with the Social Security Law of the Great Socialist People's Libyan Arab Jamahiriya and will furnish certificate from the Social Security Authority in evidence of this.
- 7. Prior to commencement of the WORK and continuing until all WORK has been completed, CONTRACTOR shall secure and maintain in full force and effect the following insurances with an Insurance Company approved by COMPANY:

#### A. Employers Liability or Workman's Compensation

The CONTRACTOR shall insure against his liability for or in respect of any damages or compensation in respect, or in consequence, of any accident, injury or death to any workman or to any other person in the employment of CONTRACTOR.

CONTRACTOR shall continue such insurance during the whole of the time that any persons are employed by him on the WORK. This insurance shall be endorsed with a waiver of insurer rights of subrogation against COMPANY.

#### B. General Liability Insurance

CONTRACTOR shall effect in the joint names of the CONTRACTOR, its sub-contractors and COMPANY, an insurance against liability for any material or physical loss or damage to property including property of COMPANY or death, injury or disease of any person including COMPANY employees by or arising out of the execution of the WORK in the carrying out of the CONTRACT.

This insurance shall include, inter alia

- i. A Cross liability Clause whereby the indemnities provided shall be applied as if a separate policy had been issued to each of the insured parties.
- ii. A subrogation waiver clause whereby the insurer agrees to waive rights of recovery from any of the insured parties.
- Provision that the insurance shall CONTRACTOR for liability for damage to the property of COMPANY other than the WORK, whether or not such property is in the custody or control of CONTRACTOR, up to a limit of indemnity of LD 200,000.
- iv. Limits of indemnity in respect of any one accident or series of accidents arising out of one event (other than events referred to in paragraph iii above) of not less than:

a. Per person b. Death, bodily injury or disease

LD 50,000 LD 100,000

د-على المقاول التقيد بالكامل بقانون الضمان الاجتماعي المعمول به فسي الجماهيرية العربية الليبية الشعبية الاشتراكية العظمى وعليه استصدار شهادة من الجهة المسئولة بالضمان الاجتماعي تفيد بذلك .

مادة 7 - قبل الشروع في العمل والاستمرار فيه لحين إنجازه على المقاول أن يضمن ويحافظ على سريان مفعول ونفاذ التأمينات التالية لدى شركة تأمين توافق عابها الشرك

# أ - مسئولية رب العمل أو تعويض العمال

على المقاول أن يؤمن ضد مسئوليته عن أو بالنسبة لأية أضرار أو تعسويض خاص أو ناتج عن أي حادث ، إصابة أو وفاة أي عامل أو أشخاص آخرين يستخدمهم المقاول.

وعليه الاستمرار في هذا التأمين طيلة المدة التي يستخدم فيها أي أشــخاص لأداء الأعمال الموكولة إليه . على يشمل هذا التأمين على تتازل المؤمنين لهـم عـن حقوقهم في الحلول محل المقاول في أية مطالبة قانونية ضد الشركة.

# ب - التأمين ضد المسئولية العامــــــــة

على المقاول استصدار تأمين مشترك باسمه الخاص و بأسماء المقاولين من الباطن وأسم الشركة ضد المستوليات عن فقد أو أضرار مادية أو بشرية تلحق بالممتلكات مشتملة على ممتلكات الشركة أو الوفيات أو الأضرار أو الأمراض التي تصيب أي مستخدم بما فيهم مستخدمي الشركة عن طريق أو ناجمــة عـن تتفيذ العمل حسب ما ينص عليه العقد.

يجب أن يشتمل هذا التأمين علاوة على أشياء أخرى على الآتي :--

1 -شرط المسئوليات المتقابلة وبموجب تطبيق التعويضات المنصوص عليها كما لو أن وثيَّقة منفصلة صدرت لكل طرف من الأطراف المؤمن عليها على اعتبار تم إصدار وثائق تأمين منفصلة تخص كل طرف على حدة .

2 -شرط تنازل عن الطول ويوافق بموجبه المؤمن على التنازل عين حق الرجوع على أي طرف من الأطراف المؤمن عليها.

3 - نص يفيد بأن التأمين سيعوض المقاول عن المسئولية الناجمة عن أي تلف يلحق بممتلكات الشركة خارج نطاق العمل الدي يقسوم بسه مسواء كانست تلك الممتلكات في حوزة المقاول أو تحت تصرفه أم لا ، على أن يكون التأمين بحد أقصى قدر ه 200,000 دل

4 حصدود التعويس عن حادث واحد أو مجموعة حوادث ناتجة عن واقعة واحدة (باستثناء الحالات المشار إليها في الفقرة 3 أعلاه ) يجب أن لا نقل

أ -- بالنسبة للفرد الواحد

50,000 د.ل. 100,000 د.ل.

ب - الوفاة أو الضرر البدني أو المرض

- 10. CONTRACTOR shall supervise and perform all the WORK in a diligent, skillful and efficient manner, and shall maintain the work area in a neat and safe condition at all times.
- 11. CONTRACTOR shall perform the WORK specified herein in conformance with, and shall observe and abide by, all applicable laws, ordinances, regulations and other rules as are in force or as may be promulgated from time to time by the Great Socialist People's Libyan Arab Jamahiriya, wherein the WORK is done, and further agree to indemnify and hold COMPANY harmless from liability or penalty which may be imposed or asserted by reason of Contractor's failure to observe and abide thereby.
- 12. Except as may be otherwise provided herein, CONTRACTOR at its own expense shall pay all Libyan taxes which may be imposed on CONTRACTOR in connection with performance hereunder including, but not by way of limitation: general income tax, stamp tax, customs duties and clearance, registration fees of the Contract. CONTRACTOR shall defend, indemnify and hold COMPANY harmless from any liability for any and all such taxes or interest or penalties for failure to pay the same.
- 13. CONTRACTOR agrees to observe and abide by all rules and regulations promulgated, or otherwise recommended by COMPANY, for the purpose of health, welfare, safety and accident prevention, co-ordination of WORK and preservation of any materials and equipment provided by COMPANY hereunder.
- 14. In consideration for the full and satisfactory performance of the WORK specified and all other obligations mentioned herein, COMPANY shall pay CONTRACTOR the lump sums of in the manner specified in Schedule 'B' attached hereto and made a part hereof. All tax-registered invoices shall be submitted to COMPANY, referencing this Contract and made out for the attention of Finance Manager, at its offices in Tripoli, G.S.P.L.A.J.

The sum or sums specified in Schedule 'B' shall constitute full compensation to CONTRACTOR for all WORK and services performed hereunder. Payment by COMPANY for works completed shall not be deemed a recognition on the part of COMPANY that such works have been completed in accordance with the terms and specifications contracted upon. COMPANY's silence on any violation of the Terms of Contract or technical specifications shall not be considered a waiver on the part of COMPANY for its entitlement under the CONTRACTOR.

15. Conditions of payment

Entitlement to CONTRACTOR shall be paid upon the presentation of official invoices duly registered at the tax Department and forwarded to the attention of Finance Manager of the COMPANY. Such invoices shall be due for payment

مادة <u>10 –</u> على المقاول مراقبة وإنجاز العمل كله بطريقة جدية وماهرة وكفـــؤة وأن يحافظ على نظافة وسلامة منطقة العمل في كافة الأوقات .

مادة 11- على المقاول تنفيذ العمل الموضح في هذا العقد وأن يحترم وياتسزم بكافة القوانين المعمول بها والأحكام واللوائح والنظم الأخرى سارية المفسول أو التي تصدر من حين لآخر بالجماهيرية العربية الليبية الشعبية الاشتراكية العظمى حيث يجرى تنفيذ العمل ويوافق على تعويض وتجنيب السشركة أي مسعولية أو عقوبة تقرض عليها أو تقرر بسبب إخفاق المقاول في مراعاة القوانين والتقيد بها .

مادة 12- مع استثناء ما يشار عليه خلافاً لذلك في هذا العقد يلتزم المقاول وعلى نفقته الخاصة بتسديد جميع الضرائب الليبية التي تقرض عليه من جراء إنجسازه العمل المذكور لاحقا بحيث تشتمل ولكن لا تقتصر على ضريبة السدخل العسام وضريبة الدمغة والرسوم الجمركية ورسوم تسجيل العقد. وعلى المقاول حمايسة وتعويض وتجنيب الشركة أية مسئولية عن الضرائب أو الفوائسد أو العقوبات الناتجة عن إخفاقه في تعديد تلك الضرائب.

مادة 13- يوافق المقاول على مراعاة والالتزام بجميع اللوائح والنظم السمارية بالجماهيرية أو التي تصدرها أو توصى بها الشركة من أجل الصحة والرفاهية والسلامة ومنع الحوادث وتتميق العمل و المحافظة على أية مواد ومعدات توفرها الشركة كما سيرد ذكرها.

مادة 14 وفي مقابل التنفيذ المتكامل والمقبول للعمل المبين وتقديرا للالتزامات الأخرى المذكورة في هذا العقد تسعدد السشركة للمقاول مبلغاً وقسدره وفق ما هو موضح في الجدول رقم (ب) المرفق بهذا العقد والذي يعتبر جزءاً منه. يجب أن تسلم الفواتير آلي مكتب الشركة بطرابلس وذلك بعد تسجيلها في الضرائب لعناية مدير المالية مشيرا آلي اسم العقد.

والمبلغ أو المبالغ المبينة والموضحة في الجدول " ب " يشكل تعويضا كاملا المقاول عن العمل بأكمله والخدمات المنجزة بموجب العقد و المبلغ المالي الذي تسدده الشركة عن الأعمال المنفذة لا يعتبر اعترافاً من جانبها بأن تلك الاعمال قد أنجزت طبقا للشروط والمواصفات التي تم التعاقد بشأنها وإن عدم قيام الشركة بأخطار المقاول عن أي خرق الشروط العقد أو المواصفات الفنية في حينه لا يعتبر تنازلا من جانبها عن حقوقها لدى المقسسساول.

#### مادة 15 - شروط الدفع:

يتم تسديد مستحقات المقاول وفقاً لفواتير رسمية مسجلة بالضرائب وتحال الى الادارة المالية بالشركة وتكون مستحقة الدفع بعد تُكثين يوماً من تاريخ استلامها من قبل مدير الادارة المذكورة .

انفقا الطرفان على أن يكون الدفع موزعاً على النحو التالى:

CONTRACTOR written notice of its representative, and any changes thereof. There shall also be an "Inspector" appointed by the Engineer to perform the functions specifically mentioned in this Contract and Schedules thereto, and any other WORK notified in writing to CONTRACTOR by the

20. CONTRACTOR shall designate a representative, who shall be known as the "Project Manager", or his designee as approved by COMPANY in the WORK area, and he shall be responsible for the WORK, and he shall have the authority to act for CONTRACTOR in all matters relating to Contractor's performance and obligations under this Contract.

Engineer.

Contractor's Project Manager for this Contract is nominated to be Mr. CONTRACTOR may change this representative at any time for good reason by giving written notice and reason for change to COMPANY. COMPANY approval to change shall not be unreasonably withheld.

21. If CONTRACTOR shall become insolvent, or if insolvency, receivership or bankruptcy proceedings shall be commenced by or against CONTRACTOR or if CONTRACTOR shall make an assignment for the benefit of creditors, or if CONTRACTOR shall assign or transfer this Contract or any right of interest therein, except as permitted under this Contract, or if the interest of CONTRACTOR shall devolve upon any person or corporation otherwise than as herein permitted, or if CONTRACTOR shall fail to make prompt payment for labour, or persistently disregard laws, ordinances, or instruction of COMPANY, or if CONTRACTOR shall fail, neglect, refuse or be unable at any time during the course of the WORK to provide ample facilities or labour to perform the WORK hereunder at an average rate deemed sufficient by COMPANY to give reasonable assurance that CONTRACTOR will complete the same on or before the completion date specified herein, or if CONTRACTOR shall default in its performance of a material provision on this Contract, then COMPANY CONTRACTOR shall have the following rights, obligations and duties: COMPANY without prejudice to any other right or terminate this Contract forthwith. may remedy, CONTRACTOR shall, if requested, withdraw from the premises and assign to COMPANY such of Contractor's subcontracts, if any, as COMPANY may request and shall remove such material, equipment, tools and instruments used by CONTRACTOR in the performance of the WORK as COMPANY may direct. COMPANY shall have the right to complete the WORK itself or with the assistance of third parties, and in such event, shall also have the right to use CONTRACTOR's material, equipment, tools and instruments that my be on site and necessary for the WORK. In the event of such termination Company's obligation will be to pay CONTRACTOR upon completion of the WORK: (a) the value of the WORK completed by him as of the date of termination, (b) the value of any of Contractor's materials used in completing the WORK and (c) the value for the use of تطرأ عليه مستقبلاً . ويعين المهندس مراقباً للقيام بمهام تحدد بوضوح في هــذا العقد و الملاحق التابعة له وأي عمل آخر يخطر به المهندس المقاول كتابياً .

مادة 20 - يعين المقاول ممثلاً عنه يعرف بمدير المشروع أو من ينوب عنه حسب موافقة الشركة ويتواجد بمنطقة العمل ويكون مسئولاً عن العمل ومضولاً بالتصرف نيابة عن المقاول في جميع الأمور المتصلة بأداء المقاول والتزامات بموجب هذا العقد .

مدير الشروع الذي ينوب عن المقاول فيهذا العقد هو المديد / والمقاول المحق في تغيير من ينوب عنه الأسباب ثابتة , ويجب اخطار الشركة عن هذا التغيير كتابيا وموضحا بأسباب تقبلها الشركة.

مادة 21 - إذا أصبح المقاول معسراً أو شُرع في إجراءات الإعسار أو الحراسة القضائية أو الإقلاس ضد المقاول أو إذا حرر المقاول صلحاً واق مع الدائنين أو إذا تتازل أو حول العقد أو أي حق فيه باستثناء ما يسمح به هذا العقد أو إذا آلت حقوق المقاول إلى شخص أو مؤسسة خلاف ما يسمح به العقد أو إذا أخفى المقاول في تسوية دفعة فورية للعمال أو تجاهل بإصرار القوانين أو المنظم أو تعليمات الشركة أو إذا أخفق المقاول أو أهمل أو رفض أو أصبح عاجزاً في أي وقت طيلة فترة تتفيذ العمل عن توفير الإمكانيات الكافية أو عمالة بغيهة تتفيد العمل بنسبة إنجاز معقولة تعتبرها الشركة كافية لإقناعها بأن المقاول في تتفيذ شرط العمل إما في التاريخ المتفق عليه أو قبله أو إذا قصر المقاول في تتفيذ شرط جوهري من شروط العقد العقد عندنذ يكون للشركة الحق في اتسخاذ الإجراءات

الشركة الحق في إنهاء هذا العقد فوراً دون المساس بحقوقها الأخرى أو حقها في التعويض وعلى المقاول إذا طلب إليه ذلك ، الانسحاب من منشآت العمل والتنازل للشركة عن عقود المقاول من الباطن ، إذا وجدت ، وحسب طلب الشركة ، وعليه إزالة المواد والمعدات والأدوات والآلات التي يستعملها في تنفيذ العمل وحسب تعليمات الشركة و للشركة الحق في إكمال العمل بنفسها أو بمساعدة اطراف ثالثة .

وفي هذه الحالة ، يكون للشركة الحق في استعمال مواد ومعدات وأدوات وآليات المقاول المتواجدة بموقع العمل والضرورية لأدائه . وفي حالــة الإنهــاء فــإن الشركة مازمة بدفع الآتي للمقاول عند إنهاء العمل : -

أ - قيمة العمل الذي أنجزه لحد تاريخ إنهاء العمل .

ب قيمة (ثمن ) أي من مواد المقاول المستعملة ( المستغلة ) في إنهاء العمل . ج - مقابل استعمال الأدوات الخاصة بالمقاول محسوبة على أسعار يومية متفق عليها .

د - يخصم من مستحقات المقاول المذكور المبالغ التالية: -

All costs to CONTRACTOR incurred under sub-paragraph iii. Shall be subject to audit by COMPANY, and CONTRACTOR is to keep proper and adequate records available at all reasonable for inspection times by an authorized representative of COMPANY.

COMPANY reserves the right to make minor changes in the WORK to be installed hereunder, if by improvement or modification a more workable or usable results is achieved. CONTRACTOR shall not make any changes or alter the design or any of the WORK to be installed hereunder for any reason whatsoever without prior approval of COMPANY.

Changes to the WORK, which do not increase CONTRACTOR's cost of doing WORK, shall not be made a basis of claim for additional compensation. A claim for additional compensation shall be allowed only if the performance of the WORK involved shall have been authorized by written order of the COMPANY.

The CONTRACTOR shall be obliged to proceed with the implementation of a change order. Any change order issued without mention of adjustment for time or value shall be deemed as involving no such adjustment.

24. CONTRACTOR shall be deemed to have visited the site, thoroughly examined COMPANY's Plans and Specifications, including all the Drawings and satisfied himself as to the nature and contours of site, character of the soil, and all other conditions requiring his consideration in performing the WORK and the necessary materials and equipment which CONTRACTOR shall furnish, therefore no claim whatsoever by CONTRACTOR against COMPANY for compensation, by reason of his encountering difficulties in performing the WORK covered by the Plans and Specifications herein set out, shall be entertained.

25. CONTRACTOR agrees that the WORK must be acceptable to COMPANY, and COMPANY shall give CONTRACTOR written notice of its formal acceptance only upon completion of the WORK and after specified tests, inspections and any consequent necessary corrections have been carried out to COMPANY satisfaction. This notice shall not be unreasonably withheld or delayed. Any failure on the part of Company's representative to condemn or reject unsatisfactory WORK or materials provided by CONTRACTOR prior to this acceptance shall not be considered an acceptance of such WORK and materials, nor shall approval by Company's representative of WORK for the

تكون كافة التكاليف التي بتكبدها المقاول بموجب الفقرة الفرعية رقم (3) خاضعة للمراجعة من الشركة وعلى المقاول الاحتفاظ بسجلات لاتقة ومناسبة وجاهزة لفحصها في أوقات مناسبة من أحد ممثلي الشركة المخولين بذلك.

تحتفظ الشركة بحقها في إدخال تغييرات طفيفة على العمل الموضح بواسطة التعديل او الزيادة بحيث تصبح الأعمال أكثر ملائمة لانجزها. ولا يجوز المقاول إدخال أية تغييرات أو تبديلات على العمل المراد تتفيذه لآي سبب كان آلا بعد حصوله على موافقة مصبقة من الشركة . ولا يترتب على التعديل في الأعمال التي لا تسبب زيادة في تكلفة عمل المقاول أي حق أو أي أساس لتقسيم أي مطالبه بالتعويض الإضافي، ولا يعتد بأي مطالبة مسن المقاول للتعسويض الإضافي، ولا يعتد بأي مطالبة مسن المقاول للتعسويض الإضافي عن القيام بأي أعمال إلا إذا كانت تلك الأعمال قد تم الأمر بها كتابة من الشركة.

يلزم المقاول بتنفيذ أمر التعديل المطلوب وفي حالة عدم نكر أي تغيير في قيمـــة المعقد أو زمن التنفيذ فيعتبر أمر التعديل لايوثر على قيمة العقد أو زمنه .

مادة 25 - يوافسق المقساول على أنه يتوجب أن يكون العمل مقبولاً من الشركة وتسزود الشركة المقاول بخطاب كتابي يعبر عن قبولها المبدأي رسمياً للعمل فقط عند الانتهاسة تعديسات لاحقسة التجارب والفحوصات المقررة و بعد إجراء أيسسة تعديسات لاحقسة وضرورية وققاً لما ترتضيه الشركة ولا يجوز للشركة الامتناع عن تقديسم خطساب القبول بالأعمال أو تأجيله دون سبب معقول . إن أي إخفاق من جانب ممشل الشركة في عدم قبول أو رفض العمل أو المواد التي أحضسرها المقساول قبل الإعراب عن قبول العمل لن يعتبر قبولاً بالعمل والمسواد ، ولا

Contract Price whether by increase or decrease, then the Contract Price will be adjusted by an amount equal to the impact of such changes to the extent applicable to the Contract. In this case the basis of payment shall be as per Articles 22 and 23.

ويكون لها تأثير مباشر على سعر العقد أما بالزيادة أو النقصان يتم تعديل السعر بقيمة تساوى التغيير في تكلفة العقد الناشئة عن ذلك . وفسى هذه الحالسة يستم الاسترشاد بالأسس المنصوص عليها في المادتين (22) ، (23) من هذا العقد.

The execution of this Contract and the rights and obligations of both parties as set forth in this Contact shall not be affected by the process of litigation except and only when a final executory award is issued. لن يتأثر تنفيذ هذا العقد وحقوقه وواجبات كلا الطرفين كما هو موضح فيه بسأي إجراءات قضائية إلا عند صدور حكم نهاني فيها .

31. Prior to the commencement of WORK hereunder, CONTRACTOR shall provide and maintain in force, a Bank Letter of Guarantee in the amount of ten percent (10%) of the Contract Price guaranteeing the faithful performance of the WORK as provided for in this Contract.

ملدة <u>31 –</u> على المقاول قبل الشروع في العمل المبين أدناه تقديم خطاب ضمان مصر في ساري المفعول بمبلغ يساوى 10% من قيمة العقد لضمان حسن إنجــــاز العمل بطريقة أمينة كما ينص العقد على ذلك .

Guarantee shall be irrevocable, unconditional and shall be written in the form and with such banks sureties as COMPANY shall approve, and shall be maintained in force until the guarantee period mentioned in Article 26 above is completed. All costs and expenses incurred in the procuring and maintaining in effect any such Bond or Guarantee will be paid for by CONTRACTOR. The amount of such a Bond or Bank Letter of Guarantee shall be payable upon any written demand by COMPANY without the need for notice or warning.

ويكون هذا الضمان غير قابل للإلغاء وغير مشروط ويكون محررا وفق صـــيغة تقبلها الشركة وصادر عن مصارف توافق عليهم الشركة و يسرى مفعوله إلـــي حين انتهاء مدة الضمان المذكور بالمادة 26 السالف ذكرها .

32. In addition to the requirement of CONTRACTOR to maintain a Performance Bond as mentioned in Article 31 of this Contract, retention of 10% shall be withheld by COMPANY from all amounts otherwise payable to CONTRACTOR.

يتحمل المقاول جميع التكاليف والمصاريف الناجمة عن توفير الضمان والمحافظة على سريان مفعولة والشركة الحق في تمديد سريان مفعول الضمان المصرفي لأية فترة لاحقة لمدته الأصلية أو تسييله حال تقديمها طلباً كتابياً بذلك وذون الحاجة إلى انذار وتحديراً أو موافقة من المقاول.

The first moiety, 50% of the total so held, shall be due to CONTRACTOR within 30 days following the issue of COMPANY's formal acceptance of the WORK as detailed in Article 25.

مادة <u>32 -</u> بالإضافة إلى حاجة المقاول إلى توفير ضمان حسن الأداء كما هو وارد بالمادة 31 من جميع المبالغ التي تسدد للمقاول .

The second moiety, being the 50% balance of retention monies held, will be due subject to any other provision of the Contract, within 30 days of the expiration of the guarantee/maintenance period mentioned under Article 26 and the fulfillment of all maintenance, repair and other obligations of CONTRACTOR under this Contract.

النصف الأول وهو ( 50 % ) من إجمالي المبلغ الذي تحقظ السشركة يكون مستحق الدفع المقاول خلال 30 يوماً بعد إصدار الشركة قبولاً رسمياً للعمل كما هو مفصل بالمادة 25.

COMPANY will have the right to make any deductions from the retained amount to cover COMPANY cost of any repairs, damages or defects arising out of or resulting from unsatisfactory WORK of CONTRACTOR, and for any replacements or obligations unfulfilled by CONTRACTOR at the end of the guarantee/maintenance period.

أما النصف الثاني ويمثل ( 50% ) من رصيد المبالغ التي تحتفظ بها الـشركة يكون مستحق الدفع ، مع مراعاة أي بند آخر بالعقد خلال 30 يوماً من نفاذ مدة الضمان / المذكور بالمادة 26 وإتمام جميع أعمال الصيانة والتـصليحات وأيـة الترامات أخرى على المقاول بموجب هذا العقد . وللشركة الحق في خصم أيـة مبالغ من القيمة التي تحتفظ بها لتغطية ما تتكبده الشركة من تكاليف ناجمة عـن أية تصليحات أو إعطاب أو نواقص ناشئة عن أو تسبب فيها العمل المرفوض للمقاول ولتغطية أية استبدالات أو الترامات لم ينفذها المقاول عنـد نهايـة مـدة الضمان / الصيانة .

CONTRACTOR shall submit fully backed up invoices in

يقدم المقاول حسابا ختاميا للعقد مدعوما بالمستندات بالكامل عند طلبه الإفراج

VEBA OIL OPERATIONS B.V.
LIBYAN BRANCH
Ghanat Al-Arif
1st September Street
P.O. Box 690
Tripoli, 2
Great Socialist People's Libyan Arab Jamahiriya

لعناية مدير الهندسة العامة

Attention: General Engineering Manager

المقـــاول

CONTRACTOR:

أسم الشركة المقاولة.

طرابلس الجمــــاهيرية العربية الليبيــــة الشعبيـــة الاشتــراكيــــة العظمـــــي

Attention:

Any change in CONTRACTOR's address shall be deem to have been properly given only if given promptly in writing to COMPANY and if delivered by hand, a receiving signature must be obtained from Engineering Department.

لعنـــاية:

أي تغيير يطرأ على عنوان المقاول سيعتبر أنه قد تم الابـــلاغ عنــه بــالطرق المناسبة فقط إذا أخطرت به الشركة على الفور وكتابياً أما إذا سلم الأخطار باليد فيجب الحصول على الإفادة بذلك بتوقيع مـن الإدارة المختصة بــالشركة.

#### OIL PIT CLEANING

#### **SCHEDULE 'A'**

#### SCOPE OF WORK

#### Preamble.

CONTRACTOR (Bidder) is required to visit the sites and scrutinize the physical conditions at and around the site of work. It is vital that CONTRACTOR (Bidder) carries out the necessary site survey, assessment of sludge accumulations adjacent ground and water contamination collect samples of the sludge for analysis in order to determine the clean up / recovery options proposed. Collect data samples at the sludge for chemical analysis in order to determine the available clean up recovery options available.

Based upon CONTRACTOR'S (Bidder's) findings CONTRACTOR will submit it's firm offer together with a method statement identifying means by which the scope of work will be achieved. Factors mentioned in item 5.1.1-5.1.9 should be addressed in the CONTRACTOR's tender proposal tabulated.

CONTRACTOR'S (Bidder's) proposal will be considered by Company on both technical and commercial grounds in competition with other bidders offered proposals, CONTRACTOR (Bidder) is therefore encouraged to fully consider it's site findings before preparing it's method statement and offer. It is intended that Bidders Method Statement will be incorporated into the contract awarded to the successful Bidder

#### GENERAL DESCRIPTION OF FACILITIES TO BE CLEANED.

Veba Oil Operations' (COMPANY' s) intent is to clean up and rehabilitate of following oil pits, and evaporation disposals pits at following locations:

- Ras Lanuf Tank Farm and Terminal
- Amal Field
- Ghani Field
- Tibisti Field

It is not anticipated that company will in future continue to adopt the open pit sludge disposal policy and it is therefore necessary to recognise that this project is a serious attempt at reclaiming and reinstating the area to as near as possible it's natural and original state.

# Ras Lanuf Tank Farm and Terminal (Two large oil and sludge disposal pits)

 $\underline{\text{No.1}}$ . Waste Oil Pit is located at West side of the Tank farm with estimated surface area of 30.400  $\text{m}^2$ .

 $\underline{\text{No.2}}.$  Waste Oil Pit is located at South side of the Tank farm with estimated  $\,$  surface area of  $15.600~\text{m}^2$ 

Sludge disposal records have been kept regularly since 1982, as per table (1)

Year	Tank No	Sludge level	Est. volume
		(inch)	(m3)
1982	1	12	1,531
1992	1	18	2,297
1994	2	38	4,849
1984	3	46	5,870
1995	3	44	5,615
1983	4	36	4,594
1991	4	51	6,508
1985	5	36	4,594
1999	5	33	4,211
1990	6	34	4,339
1993	7	22	2,807
1987	8	12	1,531
2001	8	27	3,445
1988	9	15	1,914
1983	10	36	4,594
1999	10	37	4,722
1983	11	24	3,063
1983	12	12	1,531
1997	12	24	3,063
1984	13	24	3,063
2001	13	31	3,956
2002	9	75	9.5
2003	4	96	1,226
Total			88,797

# Ghani Field (Include Ghani, Zenad Tagrifet Facha, and Jofra Pits)

The size of the Oil disposal pits in Ghani field is given below. (Table 3)

Location	Length	Width	Depth	Present
				level (m)
Ghani Station Pit-1	110	77	3	2
Ghani Station Pit-2	50	48	3	1.5
Ghani Station Pit-3	41	9	3	3
Zenad Station Pit-1	92	53	2.5	2
Zenad Station Pit-2	66	48	2.5	2
Tagrifet Station	105	77	4	2.5
Facha Station	63	48	2	0.5
Jofra Main.St.Pit-1	71	29	2.5	1.5
Jofra Main.St.Pit-2	250	100	2,5	2.5
Jofra JJ Station.Pit-1	30	15	2	1
Jofra JJ Station.Pit-2	60	30	2	2
Jofra JJ Station,Pit-3	150	80	2.5	0.5
Jofra JJ Station.Pit-4	250	200	2.5	0.5

No regular sludge measurements have been carried out; only the sludge levels are given (in meter) on the above table. Bidder is required to visit the sites and scrutinize the physical conditions at and around the site of work. It is vital that Bidder carries out the necessary site survey, assessment of sludge accumulations adjacent ground and water contamination collect samples of the sludge for analysis in order to determine the clean up / recovery options proposed.

# Tibisti Field (Include Tibisti Main, Tibisti HH and Tibisti CC Stations)

The size of the Oil disposal pits at Tibisti field is given below. (Table 4)

Location	Length	Width	Depth	Present Level (m)
Tibisti Main.St.Pit-1	440	100	3	2
Tibisti Main.St.Pit-2	400	30	2	1
Tibisti HH Station	180	120	2.5	0.5
Tibisti CC Station	170	80	1.5	0.3
En Naga	100	30	3	1

No regular sludge measurements have been carried out; only the sludge levels are given (in meter) on the above table. Bidder is required to visit the sites and scrutinize the physical conditions at and around the site of work. It is vital that Bidder carries out the necessary site survey, assessment of sludge accumulations adjacent ground and water contamination collect samples of the sludge for analysis in order to determine the clean up / recovery options proposed.

CONTRACTOR (Bidder) shall satisfy himself as to the extent of sludge involved in its pre-bid site survey as referred to in the preamble above.

- Five) 'Project Manager' shall mean the executive representative of CONTRACTOR authorised to act on behalf of CONTRACTOR with regard to all matters arising out of the work to be performed hereunder.
- Six) 'WORK' means the WORK to be executed in accordance with the Contract including materials provision as indicated.
- Seven) 'Contract' means the Agreement between COMPANY and CONTRACTOR and includes Schedules 'A' and 'B'.
- Eight) 'Contract Price' means the sum named in the Agreement subject to such additions thereto or deductions there from as may be made under the provisions herein contained.
- Nine) 'Specifications' means the description, provisions and requirements set forth in the Contract, together with all written agreements made or to be made pertaining to the methods and manner of undertaking and completing the Contract.
- Ten) 'Approval' means approved in writing, including subsequent written confirmation of previous verbal approval and 'Approved' means approved in writing, including as aforesaid.

#### 2.0 ENVIRONMENTAL CONDITIONS

### 2.1 Temperature

Average minimum shade temperature	2	°C
Maximum sun radiation temperature	75	°C
Winter ambient temperature	25	°C
Summer ambient temperature	50	°C

#### 2.2 Humidity

Maximum relative humidity	90	%
Minimum relative humidity	1	%

#### 3.0 VOO. CODES AND STANDARDS

### 3.1 Safety Precautions & Conditions

CONTRACTOR following receipt of written Approval from COMPANY shall proceed and produce the detailed engineering, equipments, which are required to execute said works and upon completion of the work prove that the said location / area is free of any environmentally detrimental contamination.

CONTRACTOR shall submit to COMPANY three (3) draft copies of all documents detailed in paragraph 5.2.1 through 5.2.7 for review and Approval. COMPANY agrees to approve said documents within two (2) weeks of receipt. Following Approval by COMPANY, CONTRACTOR shall proceed and produce their final documentation as detailed hereunder.

#### 5.2.1 Volume 1

This volume shall include the detailed cleanup methods/procedures.

#### 5.2.2 Volume 2

This volume shall include the detailed Recovery methods/procedures.

#### 5.2.3 Volume 3

This volume shall include the detailed contaminated soil and groundwater cleanup procedure.

#### 5.2.4 Volume 4

This volume shall include the detailed Remediation Methods for future use

#### 5.2.5 Volume 5

This volume shall include a listing of all the equipment to be used in carrying out work to specifications together with a schedule of hourly / daily rates for all personnel, plant and equipment, which are required to execute said works. Bidder shall also indicate a percentage reduction to the offered unit rates for claimable standby should such situation occur

#### 5.2.6 Volume 6

This volume shall include all COMPANY specifications and standards, which are required for implementing said project. COMPANY agrees to provide copies of all such specifications and standards for inclusion in this volume.

#### 5.2.7 Volume 7

Shall outline the viability technically and economically of hydrocarbon recovery from the sludge to be removed. Product recovered shall be the property of COMPANY. Recovered product specification shall be determined and established economic and assessment of cost and product values shall be fully outlined in this section. Details of market for recovered product shall be advised.

- Microsoft XP Professional on CD or as part of recovery disc (each)
- Microsoft Office XP on CD (each)
- CADWorx Plant (Full Licensed)
- Carrying Case (each)
- Padlock (each)
- Laser printer (each)
- Scanner (each)
- Optical wireless mouse (each)

## 7.2 Training

CONTRACTOR shall include for training one (1) company Engineer/Technician for a period of 2 (two) months for each location which shall result in the case of a combined award of all locations a total provision of four (4) Engineers/Technicians for two months. The training course shall consist of the latest Advanced Environmental Protection technology.

CONTRACTOR shall supply, accommodation on a full board basis including laundry services, transportation from / to the Airport upon arrival / departure, and to and from accommodation location and work / training location, whenever required.

CONTRACTOR shall also make available office accommodation for the Engineers / Technicians for the duration of the training period.

# 7.3 Company Project Input

The nature of this work dictates that COMPANY personnel will from time to time elect to exercise COMPANY rights to participate in material/equipment design reviews, inspections or attend key stage meetings and the like at CONTRACTORS or CONTRACTORS vendors overseas locations. It is CONTRACTORS obligation to, as part of its reporting requirements as specified elsewhere herein, to contemporaneously notify COMPANY of the projects development so that COMPANY has reasonable and sufficient time to logistically facilitate visa and travelling preparatory arrangements to fulfil these COMPANY project inputs. Furthermore, CONTRACTOR will be obliged to sponsor, support and assist in the visa applications for COMPANY national and international staff as appropriate. COMPANY places high emphasis on COMPANY proper follow up of the project objectives and CONTRACTOR covenants to support this objective in all respects including the provision of the following deliverables:

- A) The temporary use of normal office facilities during short term visits to include work desk area and access to PC and communication network, telephone, fax, etc.
- B) The responsibility for arranging and paying temporary business class hotel accommodation at locations convenient to the point of project follow up, including where appropriate in the overseas locations where equipment is finally tested and shipped
- C) The responsibility for arranging and transportation of COMPANY employee to and from i) the airport of arrival and ii) the hotel and the work location
- D) Full meal provision either via hotel and office or reimbursable commercial food outlets

#### 8.2. Curves

- 8.2.1 Progress S-Curve: Planned progress S-curves for Overall Project as well as Engineering, Procurement, Construction and Commissioning, conforming to Level III schedule.
- 8.2.2. Quantity Curves: Engineering quantity release and Installation curves for major, like, Concrete, Steel, Pipes, Cables, etc. conforming to Level III schedule. Contractor should load the quantities in Level III schedule, to get these curves.
- 8.2.2 Staffing Plan: Manpower plan at craft level for all disciplines and phases of the project. This can be generated from resource loaded Level III schedule.

# 8.3 Invoice / Payment Schedule:

Planned invoice schedule, based on the contract conditions and progress curve. The above documents are intended to assist the Contractor to manage the project. However, Contractor is encouraged to make all endeavours and adopt any additional internal/external tools / processes to achieve the schedule and manage the project.

VOO shall provide their comments within 2 weeks of receipt of the above documents. The contractor shall incorporate the comments and issue final version within 1 week of receipt of VOO's comments. The final issue must have signatures of Contractor's Project Manager and Construction / Site manager. Once approved by VOO, the above documents will become the baseline (targets) for ALL future discussions and reporting. This baseline reference shall not be changed unless a schedule change is approved by VOO in writing.

# 8.4 Daily Progress Report.

A one page summary report of major site activities (planned vs. actual) and holds. The contractor shall start this report when site office is opened and shall submit the report everyday to VOO's representative at site.

#### 8.5 Weekly Progress Report

A brief report on progress during the week shall be submitted toVOO every week on a mutually pre-agreed day. The contractor shall fax the report to VOO Head office to General Engineering Manager and a copy to VOO's site representative. This report shall contain planned vs. actual progress of different phases of the project (during the weekly and to-date), major activities accomplished and areas of concern, if any. Initially it may be a one page report but will expand as the work progresses. This report shall start immediately after the contract is signed. The Daily and Weekly Progress Reports shall continue until completion of the contract, Including warranty period.

# 8.7.5 Start-up and Commissioning Status including:

- A summary narrative of significant start-up activities for the reporting period including actual percent complete versus scheduled
- A list of start-up activities by system, for the reporting period. Activities shown in progress are reported through completion.
- Areas of Concern with action taken / planned to resolve it
- Safety Summary including
- A tabular display of total craft hours worked, accidents reported and time lost due to accidents. This information is for the current month and inception to date A narrative describing any significant accident during the reporting period and actions taken to avoid such accidents in future

# 8.7.6 Meetings

A listing of the project meetings held during the reporting period indicating the following: date, meeting subject, location and parties attending

Appendices: The report shall include following appendices:

- Planned vs. Actual Progress curves for all phases and disciplines
- Planned vs. Actual Quantity details and curves for all major commodities
- Planned vs. Actual Staffing curves
- Level I, Level II and Level III schedule updates with Target dates / bars, Actuals and Forecasts
- 3 Months' Look Ahead Schedule for all phases
- Schedule Change / Recovery Plan, if any
- Summary of Change Orders
- Status of Invoices (Planned vs. Actual)
- Progress Photographs

Monthly Progress Report shall start immediately after signing of the Contract and continue till performance guarantee run is complete and the plant is accepted by VOO.

# 9.0 Contractor Tools and equipments

CONTRACTOR 's tools, plant and equipment shall be adequate and shall be in first class condition. If the condition of any of the tools, plant or equipment is such that it could adversely affect the execution of the project or retard progress, CONTRACTOR shall replace it at no cost to COMPANY.

#### 10.0 **CONTRACTORS' s Camp**

CONTRACTOR's camp shall comply with the following COMPANY general requirements.

 Personnel shall be accommodated in rooms with not more than four persons per room. All beds shall be spaced apart with a minimum space between the beds of

#### OIL PIT CLEANING

#### SCHEDULE 'B'

#### **COMMERCIAL CONDITIONS**

- A. COMPANY FURNISHED TRANSPORTATION, PERSONNEL AND SERVICES
- "Air transportation per COMPANY' s normal flight schedules from Tripoli to any Field and/or from Field to Tripoli for CONTRACTOR' s personnel will not be provided free of charge to CONTRACTOR unless requested in writing by CONTRACTOR referencing this Contract and approved by COMPANY' s Engineer as being a requirement of COMPANY in connection with Contract, and then only subject to seat availability. All other (if any) utilization by CONTRACTOR of COMPANY' s air transportation facility in connection with this Contract will be back charged to CONTRACTOR 's account in accordance with COMPANY' s standard back-charge rates and procedures."
- Construction and Safety Inspector with necessary equipment to inspect the Work and issue the necessary work permits, at such times so as to cause no delays.
   Operations that require COMPANY presence for inspection or other purposes shall be restricted wherever possible to COMPANY's working hours.
- 3. In the event CONTRACTOR requests to use COMPANY 's facilities for living accommodation and provided the facility is physically capable of providing the requested service, the following rates shall apply:

Room only:

LD 25.00 man/day

Mess only:

LD 25.00 man/day

Complete Accommodation:

LD 50.00 man/day

- 4. A suitable area adjacent to the site for setting up CONTRACTOR's storage yard and office facilities shall be provided by COMPANY to CONTRACTOR at no cost.
- 5. All Hot Work, Cold Work, and other necessary permits shall be provided at proper time
- 6. Diesel fuel can be supplied at CONTRACTOR 's cost at Company's standard billing rate. CONTRACTOR to supply necessary tank trucks to distribute diesel fuel.
- 7. Note: Potable/treated water for CONTRACTOR's camp and domestic use will not be provided by COMPANY and it is envisaged that CONTRACTOR will make its own arrangements for this provision from other local sources/providers and CONTRACTOR will bear all costs in relation to such supply.
- 8. Note: Electricity for CONTRACTOR's camp and domestic use will not be provided by COMPANY and it is envisaged that CONTRACTOR will make its own arrangements for this provision by either its own generation or from other local sources/producers and CONTRACTOR will bear all costs in relation to such supply.

- Electricity for CONTRACTOR 's construction purposes is not available at work site.
   CONTRACTOR shall provide GENERATORS for all their other electrical power requirements.
- 10. COMPANY, without liability, shall provide in GSPLAJ to CONTRACTOR 's employees who render services to COMPANY medical first aid assistance limited to the capabilities and facilities of COMPANY 's own Medical Department.
- 11. Assistance for business visa application for CONTRACTOR's representatives, however applications and payment of visa fees shall be by CONTRACTOR liability.

# B. CONTRACTOR FURNISHED TRANSPORTATION, EQUIPMENT AND PERSONNEL.

- 1. CONTRACTOR shall provide all necessary equipment, plant and tools necessary to complete the WORK, as specified in Schedule 'A'
- 2. CONTRACTOR shall provide sufficient transporting vehicle to perform the WORK detailed In Schedule 'A'. CONTRACTOR shall be responsible for maintaining said vehicle in good working condition for the duration of the contract period.
- 3. CONTRACTOR shall provide all necessary personnel to complete the WORK, as specified in Schedule 'A'.
- 4. All necessary consumables, safety clothing / Protective equipment/ etc.

#### C. CONTRACT PRICE

For the faithful, full and satisfactory performance of the WORK as presented in the Various Schedules/Drawings/Specifications/ as referred to herein in accordance with the terms of the Contract, COMPANY shall pay CONTRACTOR the following Total sums:

CONTRACTOR (Bidder) shall present its Lump Sum Breakdown with its tender offer.

CONTRACTOR (Bidder) shall give a single lump sum price for ALL location in the case there is one award and also a lump sum price separately for each location as a stand-alone basis i.e. COMPANY may award one, a combination or all locations at the time of award.

Following Lump Sum prices shall be considered such as:

* All Locations together:	
Foreign Currency Lump Sum	
Libyan Dinar Lump Sum	
* Lump Sums to include the requirement at Sch. A. article 7.	

# EXHIBIT 'A"

# OIL PIT CLEANING

SAFETY, HEALTH AND ENVIRONMENTAL GUIDLINES

## SAFETY AND HEALTH GUIDELINES

#### To All Employees and Contractors Personnel:

The Veba Oil Operations SAFETY MISSION is to ensure a safe and healthy work place for all Company employees and those who work with the Company by continually reducing accidents and injuries with a goal of ZERO INCIDENTS.

Our objective is to maintain a prevention-based process for Safety, Health and Loss Prevention that results in Veba Oil Operations being a recognized leader in Safety Engineering and Environmental Policy, and our Company's Management recognizes its responsibility for promoting the highest standards of safety and is committed to developing and maintaining appropriate systems, procedures and plans to achieve the mission and objectives of this Safety Policy.

Our Safety Process is a continuous improvement process, defining compliance with governmental rules and regulations as a minimum requirement. The implementation of systems that incorporate contractor and employee safety inputs results in growth and achievement of our goals as well as providing a safe work place in which all employees can excel. The following principles guide our Company actions in all areas of operations:

- a. People are the Company's most important asset.
- b. All accidents and injuries are preventable.
- c. Safety is a line management responsibility.
- d. Management has the responsibility to train employees to work safely and to develop a "work-safe" culture.
- e. Working safely is a condition of employment.
- f. All tasks must be planned and performed with a concern for safety.
- g. Working safely makes financial sense.

Because personal safety and health are of primary importance to Veba Oil Operations, every employer and supervisor, shall hold the prevention of job-related injuries and illnesses equal to quality and above cost and production. Each employer is responsible and will be held accountable for identifying, analysing and eliminating or controlling all hazards through implementation of an aggressive, pro-active Safety and Health Program from task inception through task completion.

Supervisors shall ensure compliance with the safety and health rules, laws and regulations as they apply to their respective operations. These laws and regulations include, but are not limited to, all Veba Oil Operations - safety, health and environmental protection requirements.

Every employee is expected to perform their job according to established safe practices and to use the safety equipment and devices provided. They are expected to comply with these requirements to ensure their own safety and injury-free employment as well as being alert to unsafe practices of their fellow employees. Employees are responsible for active participation in site, operational safety and health programs, suggestion systems, training activities and the immediate reporting of all injuries, any unsafe practices or conditions observed to their supervisor/Foremen. Safety is everybody's responsibility irrespective of position.

We are convinced that through a dedicated commitment to Safety by all Veba Oil Operations staff, Contractors and Employees, 'Zero Incidents' is achievable.

Safety Manager

#### HEALTH/SAFETY/ENVIRONMENTAL (HSE) REPRESENTATIVE

The contractor shall provide one assigned Representative for coordinating the Health/Safety/Environmental Program on all projects undertaken and to coordinate with both Company (Veba) and all contractors working in conjunction with the project undertaken. The HSE representative is a resource to site line management, assisting them in administering the HSE programs and educating employees and supervisors in safe work practices. He reports directly to the site manager and receives support from the Safety Section Supervisor on location.

The HSE representative monitors the overall safety performance of the contractor, locations, trend analysis, identifying unsafe conditions and procedures and recommending corrective actions. He is responsible for the establishment and maintenance of all safety and health record-keeping systems and will liaise with Statutory Bodies with regard to any safety matters.

The HSE representative will have a thorough knowledge of the Veba safety, fire, and health regulations and a working knowledge of the local Law and legislation. He shall be available to provide safety information (M.S. Method Statements, Investigation reports etc. to Veba located Safety Officers and teams, on proper safety procedures, current and potential hazards, and employee training requirements, and implement necessary procedures in conjunction with project activities.

## **SAFETY REPRESENTATIVE / COORDINATOR:**

The Safety Representative / Coordinator shall be responsible for the administration and implementation of the Safety Program and must have a thorough knowledge of Veba Fields Safety Regulation, Contractor's Minimum Standards and safe working procedures, health regulations and a working knowledge of BS-(British Standards)—API (American Petroleum Institute) and NOC (National Oil Company). He shall assist the Veba HSE Safety Officer with all safety matters and ensures liaison and coordination channels are maintained among the respective departments relating to Safety and Health Control in relation to projects undertaken by his company.

He shall provide safety information and guidance to all employees under his scope of work, on correct safety procedures, current and potential hazards, and employee training requirements. He will conduct site safety inspections and/or attend joint safety inspections with Veba Safety Section Supervisor before and during any work task or operation and report infractions to the appropriate bodies. Carry out follow-up inspections to ensure that infractions are corrected. Record in a register all defects and or violations he observes and the remedial actions taken. Attend all construction meetings, progress schedule meetings in relation to projects under his scope.

He will assists the Contractor in reviewing any investigation of any accident/incident, which took place within the site/work location, checks the supervisors report and the action taken to remove the causes of such accident.

He participates in and assists with the conduction of the site induction program, organizing training courses, competitions, contests and other activities which will develop and maintain the interest of the persons employed within his scope of work, so as to establish a safe and healthy working condition, offering improvements on any fire and safety requirements that need to be incorporated and monitors compliance with the safety regulations and/or task assessment while the work is being performed.

#### WEEKLY CONTRACTOR SAFETY MEETING

A meeting shall be held on a weekly basis at the site work location to deliberate and to discuss over and above the following subject matters.

Summary of Safety related matters

## **VEBA & CONTRACTOR EMPLOYEES**

Must follow safe procedures and take an active part in protecting themselves and their fellow workers. Employees will be expected to report to their supervisors any hazardous conditions, practices, and behaviour in their work areas, and will be invited to make suggestions for their correction. They must make safety a part of their job by following safety rules and regulations as published in the Safety Handbook, and by using all safeguards and safety equipment provided.

#### **GENERAL STAFF**

This group includes those line staff not listed and the staff members in charge of other job location function such as field engineering, warehousing, purchasing, messing, cost and scheduling, etc.

They will be responsible for the safe performance of the work of those they supervise. They must set an example for their fellow employees by being familiar with applicable sections of the Site HSE Plan and complying with the requirements, health, hygiene, office safety, workshop storage, control of waste etc.

All staff have the authority and are encouraged to stop unsafe work or activities (if safe to do so) that are not in compliance with the Veba HSE Plan, whether the work or activity is under their direct control or not.

#### SAFE WORK PRACTICES

The performance of our work in the safest possible manner can only be realized when the work has been carefully planned and site procedures are followed. The safe work practices utilized during the Maintenance, new construction and daily running of the Veba fields, governmental Health, Safety and environmental standards, regulations and procedures. In each case, the most stringent requirement will be implemented.

As a part of all work tasks, the supervisor in charge shall outline the procedures to be followed by their crew, incorporating the established general requirements found in this plan. These safe work practices shall be followed by all employees of Veba and by its contractors of any tier.

This plan is not meant to be all encompassing and therefore, during the course of the project, Veba Safety Dept may issue additional safe work practices or rules. All deviations from the plan must be approved in writing by the Veba safety Department, prior to the work being performed.

The following is a current list of the subjects covered within the contractors Minimum Standards and safe work practices, which will be utilized during operations.

- I. Rules of personal safety and conduct for jobsite personnel
- II. Housekeeping.
- III. Personal protective Equipment (PPE).
- IV. Scaffolding.
- V. Mobil Scaffolds.
- VI. Ladders:
- VII. Welding and burning operations.
- VIII. Lifting appliances & gears.
- IX. Excavation and Trenching
- X. Fall prevention protection.
- XI. Steel & Pipe erection
- XII. Steel structure Bolting-up
- XIII. Lock-out Tag-out Procedure
- XIV. Permit To Work Procedures
- XV. Abrasive Grit Blasting
- XVI. Radiography
- XVII. Hand & Power Tools
- XVIII. Confined space entry

## **Truck Riding**

Personnel will be forbidden to ride on loads, fenders, running boards, sideboards, tailgates, or with legs or feet hanging over sides of trucks. No persons shall travel on the back of any vehicle unless the vehicle has been equipped for passengers, and at no time should there be passengers and equipment transported at the same time. (One or the other.)

#### **Equipment Operators**

Equipment operators must be qualified or certified before operating equipment, with certification on their person. A copy of certification should be handed into the Safety Department for record purposes.

#### Mobile Equipment

Personnel will be forbidden to ride on any mobile equipment where no proper seating is provided. Mobile equipment shall be regularly serviced and certified for use.

## Speed Limit

All vehicular traffic is not to exceed the posted speed limit (20 km/h around temporary offices, congested areas and off road - 60 km/h on compacted roads). Note that Limits vary from location to location.

#### **Hoisting Equipment**

At no time shall personnel ride on any load being hoisted or on a hook. Man baskets will hold the maximum of two persons unless permission has been given by the Location Veba Safety Officer.

## **Electrical Equipment**

Only authorized electricians are permitted to work with electrical appliances, other project personnel must not tamper with any electrical appliances and keep clear of electrical gear and wiring at all times.

#### Scaffolding

Must meet Veba minimum standards, and will operate with a Scaffold-tag system which shall be visible before work on scaffold is allowed. Incomplete or partially dismantled scaffolding shall also be tagged to indicate to personnel that it is not safe for use OR it is being modified.

#### Compressed Air

The use of compressed air to blow dirt from hands, hair, or clothing is strictly forbidden. Misuse of compressed air can cause serious injury.

## **Smoking Policy**

There shall be No smoking within any Tank storage areas, or out stations. Designated Smoking areas should be provided for project personnel, first obtaining permission from the location Veba Safety Officer.

#### Excavation

A designated competent person must be present during excavation. Excavation walls must be sloped at a 45-degree angle with an access / egress in place.

#### Standby

A standby man is required for both Confined Space/Vessal Entry and Fire watch duties, during welding tasks. Standby personnel should be trained in both Confined Space/V.E. and be competent in the use of fire fighting equipment used on the project. They should know their job responsibilities and what should be done in case of an emergency. Documented training is required for all standby personnel.

#### Barricades

## Section 5: PERSONAL PROTECTIVE EQUIPMENT

When equipment is required for specific work assignments or areas, its use must be enforced. Disciplinary action shall be taken against employees not doing so.

- 5.1 <u>HEAD PROTECTION</u> All project personnel, visitors, and vendors must wear a hard (safety) hat, except inside an office complex, vehicle or other <u>designated area</u>. The hard hat shall conform to Veba standards and shall be fitted with a chinstrap should the wearer be working at height, or other means of securing the hat to the wearers head (back screw).
- 5.2. <u>CLOTHING</u> Suitable clothing is required for the work being performed. The minimum required attire is long pants and a long sleeve shirt with a collar and (No vests or T-shirts, shorts) Fire retardant clothing is required during all welding operations.
- 5.3 FOOT PROTECTION Safety footwear (steel-toed) is required to be worn by all persons. It is recommended that all employees wear safety footwear that covers the ankle. Shoes with fabric uppers, sandals and all types of tennis shoes shall not be permitted. When working in concrete, adequate leg, hand, feet, Wellington boots steel toecap, and dust mask protection shall be worn to protect the employee from the hydrogenated lime found within the concrete.
- 5.4. <u>HEARING PROTECTION</u> Protective hearing equipment is to be provided and used in designated areas or for high noise hazard activity.
- 5.5. <u>RESPIRATORY PROTECTION</u> Respiratory equipment must be worn in locations where health hazards exist due to the accumulation of dust, fumes, mists, or vapors. H2S etc.
  - 5.5.1 General Respiratory Protection Program The program provides the procedures for proper selection, use, and care of respiratory equipment. This program must not be used as a substitute for generally accepted engineering control measures for air contaminants.

The Veba Safety Dept, can provide information concerning respirator approval. Approved respirators shall only be used for the purpose for which they were originally intended and must not be modified in any way. All respirators purchased must be approved and all personnel must be properly fit tested and trained prior to using respiratory protective equipment. BA (Breathing Apparatus.

## 5.6. SAFETY HARNESS / RESTRAINT BELTS GUIDELINES - GENERAL

Positive protection from falls is to be provided wherever practical – this means properly constructed working platforms consisting of guardrails, mid-rails, toe-boards and close boarded planking,. Where working platforms are not feasible or the hazard associated with their erection is greater, alternative methods will be used - safety harnesses/Restraint belts, used in conjunction with lifelines, safety nets, man baskets etc.

All safety harnesses / Belts shall be certified to EN 1497 B.S. British Standards, full body

All safety harnesses / Belts shall be certified to EN 1497 B.S. British Standards, full body harnesses shall be equipped with a shock absorber lanyard and snap hook.

5.7. HAND PROTECTION - Gloves will be used for all material handling and work where there is a potential for contact with splinters, thermal hazards (hot or cold), rough or sharp edges, abrasives, corrosives, pinch points, excessive vibrations, etc. Hand protection is also required where body movement could create a hazard to the employee, i.e. swinging a hammer, using a shovel/pick, pulling/pushing on a wrench, etc. Rubber, vinyl, or nitric coated gloves issued to employees using hazardous substances Workers using tools which vibrate (pneumatic drill/hammer, "concrete poker etc".) for extended periods, where the handle of the tool has inadequate cushioning, shall be required to wear gloves with suitable padding. Also, the length of time the workers use the tool should be minimized / workers rotated every hour. It

- 6.7 Every metal scaffold exceeding 15 meters in height shall be constructed in accordance with the design and drawings of a professional engineer, and before use must will inspected by a Safety officer.
- 6.8 Guardrails, mid rails and toe boards must be installed on all open sides of any scaffold more than 2 meters in height. Guardrails, mid rails, and toe boards should be constructed from components furnished by the manufacturer.
- 6.9 Scaffold planks must be at least 25 mm or 38 mm thick by 225 mm wide timber (dependent on the type of use and transom spacing), as specified in the Code of Practice for Scaffolding, Standard.
- 6.10 Scaffold planks must be secured in place by either wire or cleats and must extend over the end supports at least 50mm but not more than 4 times the thickness of the board or plank.
- 6.11 Scaffolds platforms must be at least three planks wide; Should this be the case then the scaffold frame should also be 3 board wide structure, the practice of large frame scaffolds having only 3 boards placed onto it as a platform shall not be permitted on Veba locations. No employee may work from a single plank.
- 6.12 Scaffold planks must be visually inspected before each use. Damaged scaffold planks must be destroyed immediately. Or removed from the project.
- Access ladders must be provided for each scaffold. Climbing off the end frames is prohibited. Access to scaffold over 3 frames or over 6 meters high shall require rest platforms or FALL safety devices (inert real) and/or a rest platform shall be provided at the 4 metre point.
- 6.14 Adequate mudsills or other rigid footing, capable of withstanding the maximum intended load, must be provided.

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- 6.15 Scaffold must be tied onto the building or structure commencing with the second lift and every second lift thereafter. The connection points shall be located no farther than one bay from the ends of the scaffold and thereafter at intermediate spacing of not more than 3 bays or 7.5 meters apart, whichever is lesser. K Rakers brace or Buttress should be used for independent scaffolding with the use of Quick Form (staging scaffold)
- 6.16 Do not overload scaffolds. Materials should be brought up as needed. Scaffolds must not be loaded in excess of their rated capacity. The landing of pipe is strictly prohibited, unless the scaffold structure has been pacifically designed for the purpose.
- 6.17 Stationary scaffolds (regardless of where they are constructed) must be equipped with a baseplate and sole plate for weight distributions in accordance with the Code of Practice for Scaffolding.
- All suspended scaffolds or platforms must be equipped with a separate vertical safety line anchored independent of the scaffold system. Workmen must tie off onto this vertical line. The safety line must have a safety factor of at least four.
- 6.19. Barrels, boxes, kegs, and similar unstable objects must never be used as work platforms or to support scaffolds. One board hop-ups (ie. single boards for the use of flange removal) are prohibited.
- Where persons are required to work or pass under a scaffold, a screen of 18-gauge, 1/2-inch wire mesh is required between the toe board and the mid-rails. Or the area should be barricaded with warning signs posted, giving a clear indication that men are working above.

- 6.21 Overhead protection is required if employees working on scaffolds will be exposed to overhead. Hazard—welding, painting etc. Pipe fitting etc."
- 6.22 The height of free standing tower scaffolds must not exceed 3.5 times the minimum base dimension and must be fitted with base plates and be placed on solid, level ground
- 6.23 Where a scaffolding structure is no longer required for it's original purpose, the scaffolding shall be dismantled and closed in the scaffolding register log.

## Section 7: MOBILE SCAFFOLDS

- 7.1 The height of any mobile scaffold must not exceed three times 3x the minimum base dimension.
- 7.2 The structure shall be plan braced, sway braced, to prevent distortion. Where the structure is more than 3 meters base dimension, additional outriggers or buttress should be added for stability.
- 7.3 The work platforms must be planked for the full width of the scaffold and be secured in position by either wire or cleats, to prevent movement. Mobile scaffolds are only to be used on solid level ground.
- 7.4 Castor wheel brakes must have a locking system and be locked when the scaffold is not in motion. Get help when moving mobile scaffolds. Make certain that the route is clear. Watch for holes and overhead obstructions.
- 7.5 Secure or remove all loose materials and equipment before moving scaffold.
- 7.6 No one is allowed to ride on top of mobile scaffolds while they are being moved.
- 7.7 Climbing the outside frame of the scaffold to gain access, is strictly prohibited, a ladder must be provided for access at all times. Where practical the access ladder shall be erected within the tower structure.

#### **DEFINITIONS:**

Base-dimension is the meter square measurement of the scaffold frame E.G.:

The scaffold frame measurement is  $= 3 \times 3$ 

The meter square is = 9

Maximum Height would be = 9 Meters.

#### Section 8: LADDERS

- 8.1 All types of ladders are available for employees' use. There is no excuse for using a makeshift means of access to a work area.
- 8.2 All manufactured ladders used on any project undertaken must be of a heavy duty, industrial type, with non-skid safety feet. (A- frame) ladders will have centre support bars and are for use on concrete floorings only.

- 9.1 Before, starting to burn or weld the proper authorization must be obtained from the Veba location Safety Officer (permit systems are in force in all Veba locations) Obtain a hot work permit from the Safety Department.
- 9.2. Conduct an equipment check before igniting any torches:
  - Cylinder check-leaks, a soapy water solution pored over the valve connections will detect gas leaks.
  - Hose connectors should also be checked for leaks, and secured properly with crimp rings NOT gage wire.
  - Pressure gage in good condition, glass face intact and not broken.
  - Flash-back arrestors on hose line.
  - Flash-back arrestor on torch, fittings secure no leaks.
  - Blow torch nozzle in place.
  - Cylinder head key available to close cylinder valve in an emergency.
- 9.3 A check must be made to make sure suitable fire extinguishing equipment is available in the work area and if required, fire blankets i.e. weld blanket/sheet. If working at height think about barricading the area bellow should other personnel have access under the work area.
- 9.4 If it is safe to commence with the operation, the work area around and below must be inspected to ensure that sparks or molten metal won't fall on combustible materials. If a worker is unable to provide the necessary safeguards, he is to report to his supervisor and alternative means found
- 9.5 Do not use matches or cigarette lighter to light torches. Proper Spark igniters must be used. Never weld or burn on barrels, tanks or piping systems, which may have contained either combustible or unknown products without first obtaining approval from a designated authority. Confirm the operation with Safety dept first. Think about gas testing the weld/cut area.
- 9.6 If working at height secure all hose lines to the structure/scaffold to prevent equipment falling from height. A means of egress will need to be planed in the event of an emergency. (The only way up could well be the only way down, should that access be blocked, how will the worker escape in an emergency?)

  Confined Space/Vessel Entry- Cylinders placed outside the space adequate lighting and ventilation will be required.
- 9.7 Fire extinguisher shall be within a three-metre distance from any welding operation.

## Storage and Handling of Cylinders (Compressed Gas)

- 1. Compressed gas cylinders brought on site are required to meet the following guideline. Cylinders shall:
  - Be in good condition and not suffering from corrosion.
  - Be properly color coded
  - Be individually identified.
- 2. The valve protective caps shall be kept on all cylinders not in actual use.

- 1. Compressed gas cylinders brought on site are required to meet the following guideline. Cylinders shall:
  - be in good condition and not suffering from corrosion, with no obvious signs of damage.
  - be properly color coded
  - be individually identified.
- 2. The valve protective caps shall be kept on all cylinders not in actual use.
- 3. All cylinders shall be used and stored in an upright position and adequately secured to prevent tipping.
- 4. Oxygen and acetylene (or other fuel gas) cylinders in storage shall be separated from each other by 6 meters or by 1.6 meter barrier which has a 1-hour fire rating. Before constructing any temporary gas compound or using any existing gas storage area, contractors must first obtain permission from Veba Safety Officer.
- 5. Both check valves and flashback arrestors are required between the torch and hose and between the hose and gauge.

## HIGH RISK WELDING OPERATIONS

Where there is a high risk of fire or injury, to other workers through sparks or hot slag, the area shall be sheeted with a flame retardant material, (fire/weld blanket). Any operation requiring welding inside vessels tanks etc will first require authorization from Veba Safety Dept and the appropriate permit system shall be put in place, a fire watch will be implemented if deemed necessary, emergency retrieval equipment may also need to be implemented for the operation. If in doubt ask.

## Section 10: EXCAVATION AND TRENCHING

All excavating and trenching operations and work done in them must conform with Veba Oil Operations established site standards.

- 10.1 Excavation permits (where required), with all authorized signatures, will be obtained prior to excavation or trenching operations from the Veba safety Dept, as applicable. The permit shall not exceed 7 days.
- 10.2 A competent person shall be on-site during all excavation and trenching work. Soil characteristics shall be evaluated and the proper sloping or shoring determined for the soil type indicated. The competent person shall check the excavation on a daily basis or when conditions change and ensure that the protection system is adequate at all times. Permits shall be terminated and all persons removed from the excavation when conditions warrant and a new permit issued once the hazardous conditions are corrected.
- 10.3 Prior to opening an excavation, it shall be determined whether underground installations; i.e., sewer, telephone, water, fuel, electric lines, etc., will be encountered, and if so, where such underground installations are precisely located. Veba safety dept, and or the relevant dept must be contacted where such lines are suspected. The lines shall be probed excavated by hand prior to machine excavation.
- 10.4 The exact location of all utility underground services lines are to be marked by stakes indicating the type of service and the depth. After all underground services have been

start of work and at regular intervals, as required. Adequate ventilation must be maintained to keep the atmosphere well below toxic or explosive concentrations

#### NOTE:

Because of the serious nature of activities surrounding excavations within out-stations or within camp compounds, and the many variables involved, a COMPETENT person is needed to plan, supervise, and inspect excavations and trenching works. For excavation use, a COMPETENT person must be trained and have experience in the use of protection systems for excavations, and be thoroughly familiar with the ground conditions surrounding Veba operational fields.

A competent person is an individual who is capable of identifying existing or predictable hazards, or work conditions, which may result in danger to employees and has the necessary authority to take action to rectify them.

## Section 11: LIFTING APPLIANCES AND GEARS

This section applies to lifting appliances and gears used in conjunction with other material handling equipment for the movement of material by hoisting. Lifting gears shall mean any rope, rope sling, ring, hook, shackle, swivel or eyebolt. Lifting appliance shall mean a pulley block or gin wheel.

- Lifting appliances and gears used by Veba and its contractors shall be tested and examined and have a valid certificate. Copies of all test and examination certificates shall be kept on site and will be made available for inspection upon request, by Veba safety Dept.
- 11.2 Lifting appliances and gear shall be properly marked with an identification number and the safe working load. They shall be color coded as indicated by the Veba safety Dept. A register of all such lifting appliances and gear shall be furnished to Veba safety Dept upon request.
- 11.3 Each contractor shall nominate a competent, experienced employee to serve as a lifting equipment coordinator. Their duties shall entail the following:
  - Ensure that all lifting appliances and each item of lifting gear are accompanied by a valid certificate and keep all such certificates for examination by Veba Safety Department.
  - Enter the details of all lifting appliances and lifting gear received on any Veba location, are entered into a register detailing the item's identification number and safe working load.
  - Ensure that all items of lifting gear are properly coded as per the Owners instruction and that a board showing the current color code is permanently displayed at the approved rigging store and other appropriate places.
  - Keep a register of all issues of lifting gear and ensure that all items of lifting gears are returned for their inspection on a monthly basis and that the results of such inspections are entered into the lifting gear register.
- The issue of webbing (canvas) slings shall be strictly controlled. Issue webbing slings to a supervisor for one job only and they shall be returned on completion of the job for reinspection by the lifting equipment coordinator and a record of all such issues and returns shall be made.
- 11.5. No lifting appliance or item of lifting gear shall be used unless it has the current colour code.

#### **DEFINITIONS:**

Safety Harnesses - Company standard includes Y-type dual 1.82 meters lanyards with locking snap hooks and a shock-absorbing device. Some types of work may require slight modifications to this standard such as, sliding back d-rings or two side d-rings used only for positioning. All modifications shall be prior approved by Veba safety Dept. The harness must comply with B.S. EN 1497 Safety harness shock absorbing devices must meet the specification, which reduce the arresting force on the employee to 818 kg or less.

Positioning Belts - Positioning belts, i.e., belts used to physically hold the employee by means of a belt, in position and prevent a fall, must restrict any free fall to 61cm or less and the anchorage must be capable of supporting at least twice the potential impact load in case of a fall. i.e. - Rodman's belt for supporting an ironworker while tying rebar in a wall, or a full body harness with two additional "D" rings on the sides.

Tie-Off Points - All tie-off points shall be at waist height or above. When "cooning" (straddling) a beam, it is permissible to tie off to that beam. All tie-off points and supports shall be capable of supporting the load per person attached. Lanyards shall be rigged as short as possible so as to minimize the potential fall distance but at no time shall it exceed 1.82 meters. The potential fall distance includes the effective length of the lanyard plus the vertical distance from the tie-off point to the lanyard attachment point on the harness when the tie-off is below the harness "D" ring.

## 12.1 Policy Implementation:

Fall Hazards are a common occurrence on most jobs, but especially where poor planning is allowed and enforcement is inadequate. This shall not be the case within the Veba operation fields. The following standards shall be complied with in all cases and shall not be modified except with the approval of the Veba safety Department or where required by Local Law legislation.

#### Training and Orientation

Employees and supervisory personnel will be trained in these requirements during the safety orientation course or prior to the start of work, reinforced in meetings, and daily/weekly toolbox meeting

## 12.2 Safety Harnesses and Fall Protection Equipment

Fall protection equipment shall meet the following standards:

- 12.3 Harnesses All harnesses, related equipment and hardware are to meet Veba Standard and British Standard requirements. Where stricter, Minimum requirements include the use of a Company standard class III body harness, shock absorber, dual 1.82 meter lanyards, with locking snap hooks. They shall be inspected periodically as per Company requirements and replaced where indicated.
- 12.4 Tie-Off Systems A system constructed onsite of wire rope perimeter cables, supports, clips, etc.; lifelines, retractable lifelines, ladder safety devices or rope grabs; wire rope minimum ½" secured to other approved means; Synthetic rope 5/8" or larger; steel beams; 2" or larger pipe, or specialty attachment devices. Specially designed/manufactured systems special clamps, supports purchased commercially. All systems must be capable of supporting intended load x 4.

turnbuckles or other such means so that when a 90kgf load is applied, the wire cannot be deflected below 91cm or higher than 1.1 meters above the working floor. Alternatively, a guardrail may be installed which has sufficient strength and rigidity to withstand permanent deformation or failure when a 50kgf load is applied in any direction.

- 13.5 The safety line/Lifeline is attached to all perimeter columns. This line should be left in place for protection of other trades until its removal is required.
- The erection floor shall be solidly planked over its entire surface except where access openings are required. Planks shall be of adequate strength to carry the intended working load and shall be laid tight and secure to prevent movement.
- When metal decking is installed for use as a work floor in place of wooden planks, it must be of sufficient strength and rigidity and shall be laid tight and secured to prevent movement.
- 13.8 Planks must overlap the bearing point of each end by a minimum of 30 centimetres. All openings in floors, either temporary or permanent, must be completely planked over or barricaded. Floor planks that are temporarily removed to perform the work must be replaced as soon as possible or the open area is to be guarded.
- 13.9 Temporary flooring must be secured to prevent displacement by wind.

#### BOLTING, FITTING-UP, DRILLING, REAMING, AND PLUMBING-UP

#### **General Safety Requirements**

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Containers/ pouches, must be provided for storing or carrying bolts and drift- pins.

#### A. Air Tools

1. Airline hose sections must be secured together, except where automatic cut-off couplers are used to join sections. (Whip-arresters.)

#### B. Bolting

- 1. Bolts, nuts, washers, and pins shall not be thrown. They will be placed in bolt baskets or other approved containers and raised or lowered by using a line.
- 2. Impact wrenches must be provided with a locking device for retaining the socket, and must be secured against dropping the wrench on persons /property bellow. (Lanyard system to attach to the Body)

#### C. Plumbing-Up

- 1. Hooks or lashing used for plumbing-up will be securely attached before stressing the turnbuckle.
- 2. When a turnbuckle is under stress during plumbing, a device must be used to keep the turnbuckle from unwinding while under load.
- 3. "Plumbing-up guys" shall not be removed without first getting permission from the Construction Manager (CM) Work Supervisor.

- 9. Vertical access provisions should, whenever possible, be fixed to the steel prior to it being lifted into position. Where this is not possible, permanent access (i.e., stairways or permanent metal ladders) shall be installed as early as possible.
- 10. Where horizontal access along structural members is required as much work as possible is to be completed, before the steel is lifted into position. This includes:
  - The fixing of handrails or lifelines for use in conjunction with safety harnesses or inertia reels.
  - The fixing of access ladders should take place before any columns are raised into place.
  - The fixing of scaffold tubes (needles) to the lower flange of an I-beam to allow a working platform to be erected.
- 11. Where scaffold tubes (needles) are used, they shall not support a working platform wider than three boards, or one lightweight staging without being "picked up" (braced back).
- 12. Where there is no ladder access, permanent stairway, etc., leading onto a working platform, as described in 10 above. Employees shall use a man riding basket or aerial lift. Which shall be tested, certified and the SWL marked clearly on the basket.
- 13. All steel erectors working at height must be provided with a pouch and belt or other such means of securing tools / nuts & bolts to prevent them dropping on personnel who may be working below.
- 14. The work area shall have a barricade directly bellow persons working at height and warning signs "men working above" will be posted.

## LOCKOUT PROCEDURE

- 14.4 A copy of the written procedure will be Distribute to all contractors to post and have available for instruction of employees.
- 14.5 The employees who are to perform the work on the equipment shall place the locks and tags that deactivate the equipment. Using the relevant colour code to identify the user
- 14.6. Where main electrical switches and circuit breakers must be used to de-energize a system, the Veba electrical supervisor must be contacted first to identify the proper controls to be locked and tagged out.
- Only those persons who placed the locks and signed the tags may remove them. Each person applies his own lock and tag.
- 14.8 When more than one employee or craft is working on a single system or piece of equipment, all shall attach their own identifiable Locks/Tags. Using colour code system for identification.
- Do not use standard circuit switches, push buttons, or toggle switches for LO/TO purposes. Employees may be injured by accidental operation.
- 14.10 Test that isolation/disconnection of the energy source has worked. Operate the start button or other normal operating controls to make certain the equipment will not operate. Return operating controls to the "neutral" or "off" position after the test, first ensuring that no personnel are exposed to danger or hazards.
- 14.11 As stated in paragraph 4 above, the person placing a lock, is responsible for it's removal, should a person who has placed a lock be absent from the job site and the lock is required to be removed in an emergency, Veba Tech Maintenance supervisor and safety officer are to be contacted. They shall instigate a thorough safety check of the system and ensure that all personnel are clear of danger and that equipment is safe to operate before giving approval for the lock to be cut.
- 14.12 Always check all locks and tags at the start of each shift. Never assume the equipment or system is locked out before starting work. If any locks have been cut or tags removed without proper authorization, immediately contact Veba safety officer who shall investigate the matter.
- 14.13 Where the work requires entrance into a confined space/Vessel entry, the provisions for confined space/Vessel entry permit shall be followed in addition to these instructions.
- 14.14 Anyone violating the rules regarding LO/TO Procedures is subject disciplinary action.

#### TAGGING PROCEDURES

- 1. The tag is to be signed in ink by both the employee and his foreman, general foreman or supervisor. This is to include their name, badge number, and the date. Write clearly, in full, no initials.
- 2. Always attach a signed tag with any lock applied.
- 3. Place tags directly on the lock and in a place as visible as possible.

- Removal and modification of completed roofing, stairways, where the elevation exceeds 2 meters.
- Spray painting/Grit Blast
- Use of cartridge explosive tools (Flair Gun)
- Excavation/Trenches / Entry to man holes.
- Hot Work / Cold Work
- Work of a hazardous nature. (Working at height)
- 15.3 Permits will be considered for any potentially hazardous activity where an extra degree of work control is felt to be appropriate.
- 15.4 A work method statement shall be submitted for all work requiring a permit-to-work, that is considered a hazardous activity, to Veba Safety Department at least 4 days before the work is due to commence.
- 15.5 In addition to work associated with permits to work, Work Method Statements shall be submitted for the following:
  - Heavy lifts. \*\*(See Definition at the end of this section.)
  - Erection of steelwork.
  - Excavations of 3 meter or more.
  - Installation or modification in any out-station (structural or paint)
- 15.6 The Work Method Statement shall detail:
  - Job to be undertaken.
  - Individual trades/disciplines involved in each activity.
  - Main equipment and tools to be used for the work.
  - Any substance/chemicals to be used and where and during which activity they will be used.
  - Whether fire standby or Gas testing is required.
  - Duration of the work to be undertaken.
- 15.7 All Work Method Statements shall be approved by the Veba Location Safety Department.
- 15.8 Definition of Heavy Lift:
  - a. Lifts in excess of 20 tons;
  - b. Lifts, which exceed 85% of the capacity of "chart" and the lifting equipment being utilized;
  - c. Lifts requiring two or more pieces of equipment operating in unison; Special lifts.
  - d. Any lift which poses particular concern due to limited access or equipment clearance, ground conditions, close proximity to high voltage cables/highline, pick and carry operations, etc.
  - e. Any lifts to be made over operating equipment.
  - f. Lifts requiring special lifting gear, such as gin poles; spreader bars.

- 16.7 Personnel assisting the blast operator or working within range of rebound abrasive must wear dust masks and goggles.
- 16.8 Personnel tending the machine must not leave the machines unattended at any time during its operation.

## **GENERAL SAFETY PRECAUTIONS**

The blasting operation shall be carried out in an enclosed, designated area. The area of blasting operation shall be roped off or barricaded and warning signs (all languages) displayed at all approaches to the work location.

## "NO ENTRY" ABRASIVE (Grit) BLASTING IN PROGRESS

- A. The supervisor is responsible for observing the distance of rebound and the positioning of barricades and warning signs.
- B. The hose nozzle and coupling must be fitted to the hose so that the fittings are not weakened by the abrasive flow. Fittings must be positive to prevent unplanned disengagement.
- C. The blast nozzle must have a "dead-man" control that will shut off the flow if the nozzle is dropped. The dead-man control shall NOT be bonded or wired closed, this action can result in serious injury should the blast nozzle be dropped by accident. Operators can be staggered of time tasked-30 mins IN 15 mins OUT this action-gives the operator a rest and less likely to drop the Blast nozzle.
- D. A properly bonded or electrically conductive hose must be used to prevent accumulation of static electricity on the operator's body.
- E. The hose must be bonded to the abrasive blasting machine.
- F. If the noise level is in excess of 85 dB(a), hearing protection must be worn.

#### Section 17: RADIOGRAPHY

Contractors OR third parties to the contractor, who carry out radiography on the project must comply with the local Radiation Protection Act & Regulations, or VEBA regulations and known safe systems of work if more stringent. In particular the following requirement shall be complied with:

- 17.1 Radiography areas shall be clearly marked using barrier tape, notices and flashing lights.
- 17.2 Audible warnings (horns) shall be sounded before a source is exposed.
- 17.3 Only classified workers are engaged in radiography work. All other personnel shall be clear of the area, before the radiography takes place.
- 17.4 Radiography work is to be supervised by a Radiation Supervisor only. Such supervisors must be nominated in writing and notified to the Veba Safety Dept in advance of any operations.
- 17.5 Any incident, which resulted in or may have resulted in over-exposure of any person, is to be immediately reported to the Veba Safety Officer, for investigation.

## Section 18: HAND AND PORTABLE POWER TOOLS

<u>General</u> - Only tools in safe working condition are to be used. Compliance with all of the manufacturer's instructions is mandatory. In addition, the following safe practices are to be observed.

- 18.1 Inspect tools in use daily to ensure that they are in proper working order. Damaged or defective tools must be repaired or replaced immediately.
- 18.2 Power saws, grinders, and other power tools must have proper guards in place at all times.
- 18.3 Power tools will be hoisted or lowered by a hand line, never by the cord or hose.
- 18.4 Cords and hoses must be kept out of walkways and off stairs and ladders. They must be placed so as not to create a tripping hazard for employees or be subjected to damage from equipment or materials. When strung overhead the Hose/Line must be at least 2 meters high at their lowest point and secured to a handrail if working at height on a scaffolding platform.
- 18.5 All portable electric tools must be grounded or double insulated suitable for the area of intended use. Hand tools shall be of 110V and of sound construction and be maintained in good working order.
- 18.6 All electrical cords and cables must be covered to protect from damage and to eliminate tripping hazards.
- 18.7 Handheld side grinders will be equipped with handles.
- 18.8 When using tools listed below, or working near others who are using such, each employee will use the additional personal protective equipment specified below:

Jackhammer

Additional Eye & Face Protection

Tampers

Hand Protection

Additional (Metatarsal) Foot Protection

Hearing Protection

Chipping Hammers

Additional Eye & Face Protection

Impact Wrenches

Hearing Protection
Hand Protection

Reamers

**Explosive Powered Tools** 

Grinders

Additional Eye & Face Protection

Hearing Protection

Cutting Torches

Additional Eye & Face Protection
Additional Hand Protection

Arc Welders

- 6. <u>Use</u> Only certified operators as described in Factories Regulation will be allowed to operate explosive powered hand tools.
- 7. All working parts will be inspected before and after each use.
- 8. All tools will be used with the correct shield, guard, or attachment recommended by the manufacturer.
- 9. The user and other personnel in the immediate vicinity will wear safety goggles and approved safety glasses. A face shield shall be worn by the user if there is danger of fragmenting materials.
- 10. No loaded or empty power-actuated tool is to be pointed at any person at any time.
- 11. The tool must not be loaded until just prior to the intended firing time. The user's hands are to be kept clear of the open barrel end. Loaded tools shall not be left unattended.
- 12. The tool is held firmly and perpendicular to the working surface.
- 13. In the event of a misfire, the tool must not be removed from the work surface for at least 30 seconds. If the charge does not explode within that time, the user shall unload the tool or place it in such a position so as to eliminate the possibility of a person being injured in the event of the charge subsequently exploding.
- 14. Tools will not be used in an explosive or flammable atmosphere tank farms, Receiver lines. Tools must not be used in the vicinity of hazardous materials.

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- 15. Driving into material easily penetrated must be avoided unless such materials are backed by a substance that will prevent the pin or fastener from passing completely through and creating a flying missile hazard on the other side.
- 16. Fasteners will not be driven into brittle or very hard materials including, but not limited to cast iron, glazed tiles, surface-hardened steel, glass block, live rock, face brick, or hollow tile.
- 17. Misfires / penetration through the fixing material or other accidents / incidents must be reported to the Veba Safety Department.

## Section 19: CONFINED SPACE ENTRY

The Veba procedures for confined area entry are based on best industry practices and the necessity of recognizing, evaluating and eliminating or controlling confined space hazards prior to entry to every confined space. The safety of all personnel in such cases shall be primary and shall mandate strict compliance with the guidelines set forth.

#### 19.1 DEFINITIONS

- A. Confined Space A space large enough for a worker to enter, but is not designed for continuous occupancy and in which access or egress is restricted. Typical confined areas include utility manholes, sewers, excavations, with H2S in mind, open tanks and stacks, silos, vessels and vessel skirts, etc.
- B. Permit Confined Space A space that meets the above conditions. AND contains or has the potential to contain, dangerous air contaminants, an oxygen deficiency;

Contractor Project Location Management is responsible for overall compliance with this program and an ongoing review of its effectiveness. to ensure the following persons are capable of safely performing all functions indicated.

The Entry Supervisor is responsible for ensuring the safety of all entrants. Before any worker enters the confined space he shall ensure they are fully aware of the exposures and hazards, the safety measures to be implemented and actions in the event of an emergency. He shall ensure that all permit requirements are complied with and authorizes entry by verifying and signing the permit. Should conditions deteriorate or change from that stated on the permit he will immediately order the evacuation of the space and cancel the permit, He is also responsible for cancelling the permit upon completion of the work.

The Air-Tester must be qualified through knowledge and experience and be competent in identifying the potential exposures and the correct equipment necessary to perform all required testing.

The "Hole Watch/Stand By Man" is responsible for ensuring there is no unauthorized entry, the confined space entrants are made aware of any deterioration of conditions, identifying signs of overexposure and notification of the rescue/Safety Dept team to respond if he cannot evacuate the entrants without entering the space.

Entrants are responsible for knowing the hazards of the space and signs of over exposure, following instructions the Entry Supervisor and "Hole Watch/Stand By Man" and compliance with all permit requirements. CONFINED SPACE PROCEDURES

The following procedures are to be implemented during the performance of designated work requiring entry into any confined space within Veba Oil Operations new project new construction area's. No person shall enter any confined space until it has been evaluated accordingly.

In addition, Veba procedures on Permit-to-Work, Lockout/Tag-out, Emergency Procedures, Respiratory Protection Program and Basic Safety Requirements must also be reviewed for applicable safety measures.

#### 19.3 Recognition and Evaluation of Confined Space Hazards

- A. Prior to the start of work, A Hazard Analysis is reviewed for the potential or necessity of workers to enter confined spaces and plans made to design out the hazard or remove the necessity to enter the space.
- B Where work in a confined space is identified in the hazard analysis or in weekly planning meetings and any of the above-mentioned hazards may be a potential factor, this procedure will apply. All confined spaces identified shall be reviewed using a confined space safety checklist. Where the space contains or has known potential to contain a hazardous atmosphere or other serious safety hazard, drawings, MSDS and specifications shall be reviewed to determine the steps needed to prepare the space for entry as indicated below.
- C. A plan for safe entry is then developed for review. All departments involved must be made aware of the actions to be taken, all the necessary equipment and resources made ready, the emergency rescue plans developed, and the training provided as required to perform the work safely.

## 19.4 Entry Permit

A. Every confined space, regardless of its contents, must be ventilated to eliminate the potential for oxygen deficiency and the accumulation of combustibles or toxic substances. The space must be sufficiently ventilated so that levels of combustibles do not exceed 10 percent of their lower explosive limit (LEL), toxic substance levels must not exceed their respective threshold limit values (TLV). The most efficient way to vent a space is to introduce fresh air near the bottom of the space and discharge it near the top. The system of positive ventilation used for any confined space must be designed to maintain a constant flow of fresh air through all areas of the space.

After the space has been cleaned, purged, and ventilated, the atmosphere is re-tested. If the atmosphere still tests positive for any hazard, further cleaning, purging, and ventilation may be necessary.

## 19.7. ATMOSPHERIC TESTING

- A After it has been assured that all isolation and lockout procedures have been implemented, the atmosphere within the confined space will be tested. Testers shall not enter the space (head past flanged opening) to perform tests unless wearing appropriate PPE for the anticipated hazards.
- B. Testing will be performed for: 1) oxygen content, 2) the presence of combustible/flammable gases where identified as a potential hazard, 3) toxic gases and vapours are also tested for immediately prior to entry and thereafter as conditions warrant. Only approved, calibrated testing devices shall be used to conduct these tests based on the substances anticipated and the conditions for entry. The date, time and test results will be entered on the Confined Area Entry Permit and signed for by the tester. Where a build-up of toxic gases, flammables, or an O2 deficiency is possible, continuous monitoring shall be conducted and periodically recorded on the permit as determined by the competent person in charge.

#### 19.8 Entry Procedures

A. Contractors Supervisors are responsible for ensuring that their employees involved in confined space work receive proper training in safe entry procedures and rescue operations (if required), including any and all requirements specified on the Confined Space Entry Permit.

## NOTE:

Under no circumstances is anyone to enter a confined space without it first being tested. A pre-entry meeting is held by the Entry Supervisor with all personnel involved to review the permit requirements and applicable hazards. Veba Safety Officer should be notified and if required attend the pre-meeting.

- B. "Hole Watch/Stand By Man" at least one "Hole Watch/Stand By Man" must be stationed at the entrance of the confined space. This observer must be capable of monitoring the work in progress. In addition, he must be properly trained, equipped and capable of removing a worker in an emergency or able to call for help and must not enter the confined space for any reason. See "Hole Watch/Stand By Man" clear communications must be had with the Veba Safety Dept to allow quick response in the event of an emergency.
- C. Where a potential exists that the environment may become "Immediately Dangerous to Life and Health" (IDLH), a lifeline shall be attached to the person and secured to

# EXHIBIT 'B'

# DRAWING LIST

Item	Drawing Number	Drawing title
	•	
1	V 40 / C / A3 / 0007	Ras Lanuf Tank Farm West Side Evaporation Pond
2	V 40 / CP / A3 / 0008	Ras Lanuf Tank Farm South Side Evaporation Pond

## EXHIBIT 'C'

# **TABLES**

Item	Table No.	Table title
1 .	No.1	Summary of Sludge Disposal at Ras Lanuf
2	No.2	Amal Field Pit Details at Different Stations
3	No.3	Ghani Field Pit Details at Different Stations
Δ	No 4	Tibisti Field Dit Details at Different Stations

TABLE No.1
SUMMARY OF SLUDGE DISPOSAL AT RAS LANUF

Year	Tank No	Sludge level	Est. volume
		(inch)	(m3)
1982	1	12	1,531
1992	1	18	2,297
1994	2	38	4,849
1984	3	46	5,870
1995	3	44	5,615
1983	4	36	4,594
1991	4	51	6,508
1985	5	36	4,594
1999	5	33	4,211
1990	6	34	4,339
1993	7	22	2,807
1987	8	12	1,531
2001	8	27	3,445
1988	9	15	1,914
1983	10	36	4,594
1999	10	37	4,722
1983	11	24	3,063
1983	12	12	1,531
1997	12	24	3,063
1984	13	24	3,063
2001	13	31	3,956
2002	9	75	9.5
2003	4	96	1,226
Total			88,797

## TABLE No. 2

## AMAL FIELD PIT DETAILS AT DIFFERENT STATIONS

Location/Station No	Oil	Pit	Evapo Po		Location	
	Length	Width	Length	Width		
Station - 1	30	20	143.000	92	West of Plant	
Station - 2	40	40	<del>- 250</del>	120	West of Plant	
Station - 3	25.5	23.5	225	113	East of zPlant	
Station - 4	55	35	87	50	West of Plant	
Station - 5	96	73	88	72	West of Plant	
	83	67	59	80		
Station - 6	30	30	150	154	West of Plant	
			149	146		
Station - 7	40	40	-300	110_	South of Plant	
Station - 9	20	20	80	50	West of Plant	
Station - 10	10	10	none	none	West of Plant	
Tank Farm	30	75			North Of Tanks	
	60	75			·	
Tank Farm	30	50			North Of Tanks	
	20	25				

- 30 days of roduction of each stadion.

TABLE. No. 3

# GHANI FIELD (PIT DETAILS AT DIFFERENT STATIONS)

Location	Length	Width	Depth	Present
				level (m)
Ghani Station Pit-1	110	77	3	2
Ghani Station Pit-2	50	48	3	1.5
Ghani Station Pit-3	41	9	3	3
Zenad Station Pit-1	92	53	2.5	2
Zenad Station Pit-2	66	48	2.5	2
Tagrifet Station	105	77	4	2.5
Facha Station	63	48	2	0.5
Jofra Main.St.Pit-1	71	29	2.5	1.5
Jofra Main.St.Pit-2	250	100	2.5	2.5
Jofra JJ Station.Pit-1	30	15	2	1
Jofra JJ Station.Pit-2	60	30	2	2
Jofra JJ Station.Pit-3	150	80	2.5	0.5
Jofra JJ Station.Pit-4	250	200	2.5	0.5

TABLE No. 4

# TIBISTI FIELD (PIT DETAILS AT DIFFERENT STATIONS)

Location	Length	Width	Depth	Present
				Level (m)
Tibisti Main.St.Pit-1	440	100	3	2
Tibisti Main.St.Pit-2	400	30	2	1
Tibisti HH Station	180	120	2.5	0.5
Tibisti CC Station	170	80	1.5	0.3
En Naga	100	30	3	1

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1.0	0 VIC	MT210A	MACHINE TORCH	MF 210A			309.710E	<b>A</b> 309.71
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-				Thank You!				
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DRIVER	1	SUB TOTAL	HAZMAT CHARGES	TRANSPORT		SALES TAX	TOTAL	
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CYLINDERS ARE RETURNED IN APPARENT GOOD ORDER, BUT ARE GOODS RETURNED, UNLESS DEFECTIVE OR NOT ACCORDING TO ORDER, WILL BE SUBJECT TO A SUBJECT TO ADDITIONAL INSPECTION IN OUR PLANT.

MSDS DATA SHEETS AVAILABLE

ALL SALES ARE SUBJECT TO THE TERMS AND CONDITIONS ON THE BACK
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**PRINT NAME** 

SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT CALL CHEMTREC • DAY OR NIGHT 800-424-9300

ALL GOODS	REMAIN	THE PRO	PERTY	OF THE
SELLER U	NTIL FINA	AL PAYME	NT IS I	MADE.

RED'D BY:

CUSTOMER'S SIGNATURE

## **ADVANCED GAS & EQUIPMENT, INC.**

6200 SOUTH LOOP EAST HOUSTON, TEXAS 77087

TEL.: (713) 645-3443 FAX: (713) 645-6869

2,353.97



Please remit to:

- ADVANCED GAS & EQUIPMENT, INC
- ' 6200 South Loop East Houston, TX 77087

INVOICE SOLD TO SHIPPED TO RECEIVED CES ENVIROMENTAL SERVICES, INC 4904 GRIGGS ROAD JUL 1 5 2008 HOUSTON, TEXAS 77021 TRUCK ROUTE SEQUENCE WAREHOUSE CLERK INVOICE No. DELIVERY NOTE No. 70295 25008-0 alex DELIVERY DATE INVOICE DATE ORDER DATE SALESREP CUSTOMER SALES TAX LICENSE NO TERMS PAGE M 2008 07 2008 07 07 03 1 3 NET 30 DAYS 02 03 2008 CUSTOMER CODE REQUISITION NO. CUSTOMER ORDER NO. BILL OF LADING NO. SHIPPED VIA CES001 375382 25008-0 CPU U/M QTY ORDERED STOCK NO. DESCRIPTION B/ORDR QTY DEL PRICE AMOUNT 1.00 SMI H2051A580 FLOWMTR 3 SCALE 0-50 1.00 62.5600EA 62.56 SCFH 0.4600EA 2.00 WES 7323 FERRULE, BRASS 2.00 0.92 2.00 WES AW14A NUT, INERT ARC FITTNG 2.00 1.1900EA 2.38 2.00 WES AW17 NIPPLE, INERT ARC FIT 2.00 1.8700EA 3.74 5.00 BES 14GRN 1/4" HOSE SINGLE GRN 5.00 0.5400FT 2.70 1.00 MIL 907322 MILLERMATIC 252 1.00 2281.6700EA 2281.67 230/460/575 SN# LJ110575B TOTAL SUB-TOTAL HAZMAT CHARGE TRANSPORT SALES TAX

0.00

ADMINISTRATION FEE

194.21

18% PER YEAR, CALCULATED MONTHLY AT THE RATE OF 1.5%, ON ALL OVERDUE ACCOUNTS

MATERIAL SAPETY DATA SHEETS AVAILABLE IN A TRANSPORT EMERGENCY, CONTACT 1-800-424-9300

0.00

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## Industrial Gases • Welding Supplies and Equipment

# ADVANCED GAS & EQUIPMENT

OFF	ICE	CO	PY
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Sales - Rental - Repair

DELIVERY NOTE

SAME AS "SOLD TO"

6200 South Loop East • Houston, TX 77087 (713) 645-3443 • FAX (713) 645-6869 SOLD TO SHIPPED TO

CES ENVIROMENTAL SERVICES, INC 4904 GRIGGS ROAD HOUSTON, TEXAS 77021 (713) 676-1460

DELIVERY NOTE NO. TRUCK ROUTE SEQUENCE WAREHOUSE ENTERED BY 25008-0 alex REFERENCE NO. STATE TAX LICENSE NO. DELIVERY DATE INVOICE DATE **TERMS** ORDER DATE 25008 NET 30 DAYS 2008 b7 b2 CUSTOMER CODE CUSTOMER'S ORDER NO REQUISITION NO BILL OF LADING NO. SHIPPED VIA **CES001** B75382 25008-0 CPU QUANTITY CYLINDERS **DESCRIPTION** GAS CODE CLASS UN VOLUME PRICE U/M **AMOUNT** ORDERED **DANGEROUS GOODS** SETURNED OFFIVERS STOCK NO. **DESCRIPTION** 62.56 1.00 SMI H2051A580 FLOWMIR 3 SCALE 0-50 62.560EA SCFH 2.00 WES 7323 FERRULE, BRASS 0.460EA 0.92 2.00 WES AW14A NUT, INERT ARC FITTNG 1.190EA 2.38 2.00 WES AW17 NIPPLE, INERT ARC FIT 1.870EA 3.74 5.00 1/4" HOSE SINGLE GRN 0.540FT 2.70 BES 14GRN I110575B MIL 907322 MILLERMATIC 252 2281.670EA 2281.67 1.00 230/460/575 Thank You! SUB TOTAL HAZMAT CHARGES TRANSPORT SALES TAX DRIVER

CYLINDERS	ARE	RETURNED	IN	<b>APPARENT</b>	GOOD	ORDER,	BUT	ARE
SUBJECT TO	) ADDI	ITIONAL INSP	EC.	NON IN OUR	PLANT.			

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GOODS RETURNED, UNLESS DEFECTIVE OR NOT ACCORDING TO ORDER, WILL BE SUBJECT TO A HANDLING CHARGE.

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MSDS DATA SHEETS AVAILABLE

2,353.97

ALL SALES ARE SUBJECT TO THE TERMS AND CONDITIONS ON THE BACK
HEREOF WHICH BUYER ACKNOWLEDGES HAVING READ AND WHICH ARE
PART OF THIS SALE OR TO ALL TERMS AND CONDITIONS TO WHICH
PARTIES HAVE AGREED IN A WRITTEN CONTRACT.

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RED'D BY:

SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT **CALL CHEMTREC • DAY OR NIGHT** 800-424-9300

ALL GOOD	OS REMAIN T	HE PROPERT	Y OF THE
SELLER	<b>UNTIL FINAL</b>	PAYMENT IS	MADE.

PRINT NAME

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CUSTOMER'S SIGNATURE

TOTAL

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Purchase Order Request Form		P.O. Number:	375382		
		Date:	7-2-	08_	
Vendor:	Advance Gas				
Contact:	Tony				
Phone:	713-645-3443				
Item #	Description		Quantity	Cost	
	wording machine.		1	2,426-67	
				and the second of the second o	
	# (F.A)				
Submitted By	: Jorge				
Approved By	: <u> </u>				
	For Office Us	e Only			
Internal Exper	se: Job Ex	pense:			
CS FS Trans		What Job? Port	ARCTHUR		
Trans SGA		Give Vendor	Re-Sale Certi	ficate	
MRI DRM DSP		Vendor to Ch	arge Sales Ta	x	



#### ADVANCED GAS & EQUIPMENT.

6200 South Loop East • Houston, TX 77087 (713) 645-3443 • FAX (713) 645-6869

PO# 375382 CUSTOMER'S COPY

Sales - Rental - Repair

DELIVERY NOTE

SOLD TO SHIPPED TO CES ENVIROMENTAL SERVICES, INC 4904 GRIGGS ROAD SAME AS "SOLD TO" HOUSTON, TEXAS 77021 (713) 676-1460 DELIVERY NOTE NO. TRUCK ROUTE SEQUENCE WAREHOUSE ENTERED BY alex 25008-0 REFERENCE NO. STATE TAX LICENSE NO. ORDER DATE INVOICE DATE **TERMS DELIVERY DATE** 1 25008 NET 30 DAYS 2008 b7 b2 CUSTOMER CODE CUSTOMER'S ORDER NO. REQUISITION NO. BILL OF LADING NO. SHIPPED VIA **375382** CPU **CES001** 25008-0

							"		
QUANTITY GA	AS CODE	DESCRIPTION DANGEROUS GOODS	CL.	ASS UN	CYLINDERS RESURNED DELIVERED	VOLUME	PRICE	U/M	AMOUNT
QUANTITY	STOCK NO.		CRIPTION		and the state of t				
2.00 W 2.00 W 2.00 W 2.00 W 5.00 B	MI H2051A580 ES 7323 ES AW14A NES AW17 NES 14GRN 11 H2051A580 ES AW17 NES 14GRN 11 H2051A580 ES AW17 NES 14GRN H21 907322 M	FLOWMTR 3 SCALE 0 SCFH FERRULE, BRASS NUT, INERT ARC FI NIPPLE, INERT ARC 1/4" HOSE SINGLE MILLERMATIC 252 230/460/575	-50 TING FIT	144		- 37 26	62.560E 0.460E 1.190E 1.870E 0.540E 2281.670E		62.56 0.92 2.38 3.74 2.70 2281.67
DRIVER	SUB TOTAL		nk You!			SALES TAX			

CYLINDERS ARE RETURNED IN APPARENT GOOD ORDER, BUT ARE SUBJECT TO ADDITIONAL INSPECTION IN OUR PLANT.

2,353.97

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RED'D BY:

GOODS RETURNED, UNLESS DEFECTIVE OR NOT ACCORDING TO ORDER, WILL BE SUBJECT TO A HANDLING CHARGE.

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MSDS DATA SHEETS AVAILABLE

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SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT CALL CHEMTREC • DAY OR NIGHT 800-424-9300

ALL SALES ARE SUBJECT TO THE TERMS AND CONDITIONS ON THE BACK
HEREOF WHICH BUYER ACKNOWLEDGES HAVING READ AND WHICH ARE
PART OF THIS SALE OR TO ALL TERMS AND CONDITIONS TO WHICH
PARTIES HAVE AGREED IN A WRITTEN CONTRACT.

PRINT NAME

0.00

CUSTOMER'S SIGNATURE

0.00

ALL GOODS REMAIN THE PROPERTY OF THE SELLER UNTIL FINAL PAYMENT IS MADE.

6200 SOUTH LOOP EAST HOUSTON, TEXAS 77087

TEL.: (713) 645-3443 FAX: (713) 645-6869



Please remit to: ADVANCED GAS & EQUIPMENT, INC 6200 South Loop East Houston, TX 77087

INVOICE SOLD TO SHIPPED TO CES ENVIROMENTAL SERVICES, INC 4904 GRIGGS ROAD JUL 1 5 2008 HOUSTON, TEXAS 77021 TRUCK ROUTE SEOUENCE WAREHOUSE CLERK INVOICE No. DELIVERY NOTE No. 25070-0 70184 tony ORDER DATE DELIVERY DATE INVOICE DATE SALESREP CUSTOMER SALES TAX LICENSE No. TERMS PAGE 3 NET 30 DAYS 2008 07 03 2008 07 03 | 2008 | 07 03 1 CUSTOMER CODE SHIPPED VIA REQUISITION NO. BILL OF LADING NO. CUSTOMER ORDER NO. CES001 375390 25070-0 CPU CYLINDERS GAS CODE CLASS UN VOLUME PRICE U/M AMOUNT OTY.ORD DESCRIPTION RET'D 1 46.5000CYL AIRZEROT AIR ZERO 300 T 2.2 1002 1.00 46.50 TOTAL SUB-TOTAL HAZMAT CHARGE TRANSPORT SALES TAX 3.84 46.50 0.00 0.00 50.34

ADMINISTRATION FEE

18% PER YEAR, CALCULATED MONTHLY AT THE RATE OF 1.5%, ON ALL OVERDUE ACCOUNTS

MATERIAL SAFETY DATA SHRETS AVAILABLE
IN A TRANSPORT EMERGENCY, CONTACT
1-800-424-9300



ADVANCED GAS & EQUIPMENT

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Sales - Rental - Repair

6200 South Loop East . Houston, TX 77087 (713) 645-3443 • FAX (713) 645-6869 DELIVERY NOTE SOLD TO SHIPPED TO CES ENVIROMENTAL SERVICES, INC 4904 GRIGGS ROAD SAME AS "SOLD TO" HOUSTON, TEXAS 77021 (713) 676-1460 DELIVERY NOTE NO. TRUCK ROUTE SEQUENCE WAREHOUSE **ENTERED BY** 25070-0 tony REFERENCE NO STATE TAX LICENSE NO. INVOICE DATE **TERMS** ORDER DATE **DELIVERY DATE** 

25070 NET 30 DAYS 2008 07 03 CUSTOMER CODE CUSTOMER'S ORDER NO. REQUISITION NO. BILL OF LADING NO. SHIPPED VIA CES001 B75390 25070-0 CPU CYLINDERS QUANTITY **DESCRIPTION** GAS CODE **CLASS** UN **VOLUME** PRICE U/M **AMOUNT** ORDERED **DANGEROUS GOODS** RETURNED DELIVERE 46.500cm AIR ZERO 300 T 2.2 .0021 AIRZEROT STOCK NO. DESCRIPTION Thank You! DRIVER SUB TOTAL HAZMAT CHARGES TRANSPORT SALES TAX

CYLINDERS ARE RETURNED IN APPARENT GOOD ORDER, BUT ARE GOODS RETURNED, UNLESS DEFECTIVE OR NOT ACCORDING TO ORDER, WILL BE SUBJECT TO A SUBJECT TO ADDITIONAL INSPECTION IN OUR PLANT.

MSDS DATA SHEETS AVAILABLE

SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT CALL CHEMTREC . DAY OR NIGHT 800-424-9300

ALL SALES ARE SUBJECT TO THE TERMS AND CONDITIONS ON THE BACK HEREOF WHICH BUYER ACKNOWLEDGES HAVING READ AND WHICH ARE PART OF THIS SALE OR TO ALL TERMS AND CONDITIONS TO WHICH PARTIES HAVE AGREED IN A WRITTEN CONTRACT.

TERMS: ALL BILLS DUE AND PAYABLE NET 30 DAYS. A FINANCE CHARGE OF 1.5% PER MONTH WHICH IS AN ANNUAL PERCENTAGE RATE OF 18%, WILL BE CHARGED ON ALL ACCOUNTS 30 DAYS PAST DATE OF NOTICE. PRINT NAME

CUSTOMER'S SIGNATURE

ALL GOODS REMAIN THE PROPERTY OF THE SELLER UNTIL FINAL PAYMENT IS MADE.

THOMAS RED'D BY:

EPAHO055000011

TOTAL

Order l	Request Form	P.O. Number:	375390	2
**************************************		Date: 7	-3-08	
Vendor: _	ADVANCE GAS			-
Contact: _				
Phone: _				
Item #	Description		Quantity	Cost \$
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	***************************************			
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Submitted B	y: Soren Thoma	<u> </u>	The second of th	
Approved By	Long Thomas		e Ma	•
Thirosom p		Section of the sectio		Project March Const.
	Office Us	e Only		
Internal Exp	pense: Job Expense:			The state of the second st
CS FS				

Users Vendor Re-Sale Centica

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SOLD TO

#### Industrial Gases • Welding Supplies and Equipment

### ADVANCED GAS & EQUIPMENT

6200 South Loop East • Houston, TX 77087

SHIPPED TO

CUS	TOME	R'S CC	PY
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Sales - Rental - Repair

(713) 645-3443 • FAX (713) 645-6869 **Advanced**Gas

CES ENVIROMENTAL SERVICES, INC

4904 GRIGGS ROAD

ALL GOODS REMAIN THE PROPERTY OF THE SELLER UNTIL FINAL PAYMENT IS MADE.

DELIVERY NOTE

	Н	OUSTON,	TEXAS (713)	77021 676-1460				SA	ME AS	SOLD	ľO"
TRUCK	ROUTE	SEQUENCE		WAREHOUSE	ENTERED BY			j je	oice ('o.	-5 - 4 typediheni	<b>IVERY NOTE NO</b> 25070-0
REFERENCE 25070	PHI CHARLET		STATE TAX LIC		NET 30 DA		CARROLL CALLS	B 07 03	BELIVERY	7 3	INVOICE DATE P
CES001		375390	CUSTON	IER'S ORDER NO.		REQUISITION NO.	250	BILL OF LADIN		CPU	SHIPPED VIA
QUANTITY ORDERED	GAS C	ODE	DAI	DESCRIPTION NGEROUS GOO		.ASS  UN ⊦	CYLINDERS BETORNED DELIVERED	VOLUMI	E PRIC	E U/M	AMOUNT
QUANTITY ORDERED	AIRZER	TOCK NO	O.		2.2	1002	To add the second secon		Y	500CVI.	
				<u> </u>	Thank You!						
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**PRINT NAME** 

RED'D BY:

CUSTOMER'S SIGNATURE

# ADVANCED GAS & EQUIPMENT, INC. 6200-SOUTH LOOP EAST HOUSTON, TEXAS 77087

TEL.: (713) 645-3443 FAX: (713) 645-6869



Please remit to: ADVANCED GAS & EQUIPMENT, INC 6200 South Loop East Houston, TX 77087

RECEIVED SHIPPED TO INVOICE SOLD TO CES ENVIROMENTAL SERVICES, JUL 1 5 2008 4904 GRIGGS ROAD HOUSTON, TEXAS 77021 ROUTE DELIVERY NOTE No. TRUCK SEQUENCE WAREHOUSE CLERK INVOICE No. colleen 70294 25365-0 ORDER DATE DELIVERY DATE INVOICE DATE SALESREP TERMS PAGE CUSTOMER SALES TAX LICENSE NO. 07 07 07 2008 07 NET 30 DAYS 2008 2008 07 1 CUSTOMER CODE CUSTOMER ORDER NO. REQUISITION NO. BILL OF LADING NO. SHIPPED VIA CPU CES001 375394 QTY ORDERED STOCK NO. DESCRIPTION B/ORDR QTY DEL PRICE U/M AMOUNT 50.00 HOB 4181850 7018 1/8X50# 418 ROD 50.00-1.9200LB 96.00-POSTPLE TOTAL TRANSPORT SUB-TOTAL HAZMAT CHARGE SALES TAX 96.00-0.00 0.00 7.92 ADMINISTRATION FEE

> MATERIAL SAPETY DATA SHEETS AVAILABLE IN A TRANSPORT EMERGENCY, CONTACT 1-800-424-9300

18% PER YEAR, CALCULATED MONTHLY AT THE RATE OF 1.5%, ON ALL OVERDUE ACCOUNTS

Purchase	•	O.O. Number:	3753	08
Vendor: Contact:	Advance G	a 5		
Phone:	713.645,3443	3		
Item #	Description  Pire  418 Prod 701  6011 8850 335 A  6011 832 X So 335  Glove  Supplies Elect	Rod	Quantity  10 50 50 50	Cost 3.45 1.92 1.91 2.10 17.77 1.97 1.97
Approved By			3	90.29
Internal Exper CS FS Trans SGA MRI DRM DSP	What Jol	Give Vendor	Re-Sale Certifi	



## ADVANCED GAS & EQUIPMENT

Sales - Rental - Repair

6200 South Loop East • Houston, TX 77087 (713) 645-3443 • FAX (713) 645-6869 DELIVERY NOTE SOLD TO SHIPPED TO CES ENVIROMENTAL SERVICES, INC 4904 GRIGGS ROAD SAME AS "SOLD TO" HOUSTON, TEXAS 77021 (713) 676-1460

TROCK	HOOIE	SECUENCE	WAREHOUSE	counter					25101-0	,30 kg
REFERENCE NO	).	STAT	TE TAX LICENSE NO.	NET 30 DAY	ERMS	2008 07 L	1	RY DATE		<b>P</b> /
CUSTOMER C		PO	CUSTOMER'S ORDER NO.		EQUISITION NO.		LADING NO.	CPU	SHIPPED VIA	
QUANTITY ORDERED QUANTITY ORDERED	GAS C	FOCK NO.	DESCRIPTION DANGEROUS G		ASS   UN	NDERS VOLU	JME PRI	ICE U/N	M AMOUNT	
10.00 50.00 50.00	UNI HOB HOB HOB TIL AGE	22130 4181850 335A18500 335A53250 850XL #2	4-1/2X1/8X5/ 7018 1/8X50# CAN6011 1/8X50# DCN6011 5/32X50 GLOVE ELK GO: #2 WELDING C: ELECT HOLD 2	8-11 PIPE 418 ROD CAN 335A ROD #CAN 335A ROD LD XL ABLE			0 × 3. 50 ′ 1. 50 ′ 2. 70 ′ 2. 1 ′ 17.	.450FA .920LB .910LB .100LB .770PR .870FT .470EA		
DRIVER		SUB TOTAL	HAZMAT CHARGE	S TRANSPORT	ner ein er eine geber geber der eine fere eine der eine der eine der eine der eine der eine der eine der eine	SALES TA	× 1017	AL)	390.29	

CYLINDERS ARE RETURNED IN APPARENT GOOD ORDER, BUT ARE GOODS RETURNED, UNLESS DEFECTIVE OR NOT ACCORDING TO ORDER, WILL BE SUBJECT TO A SUBJECT TO ADDITIONAL INSPECTION IN OUR PLANT.

HANDLING CHARGE.

MSDS DATA SHEETS AVAILABLE

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HEREOF WHICH BUYER ACKNOWLEDGES HAVING READ AND WHICH ARE
PART OF THIS SALE OR TO ALL TERMS AND CONDITIONS TO WHICH
WITH IS AN ANNUAL PERCENTAGE RATE OF 18%, WILL BE CHARGED ON ALL ACCOUNTS 30 DAYS
PAST DATE OF NOTICE.

SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT **CALL CHEMTREC • DAY OR NIGHT** 800-424-9300

 	 	 OPERTY ENT IS N	OF THE
	alithir - Inch		

PRINT NAME

RED'D BY:

6200 SOUTH LOOP EAST HOUSTON, TEXAS 77087

TEL.: (713) 645-3443 FAX: (713) 645-68@9



Please remit to: ADVANCED GAS & EQUIPMENT, INC 6200 South Loop East Houston, TX 77087

INVOICE SOLD TO CES ENVIROMENTAL SERVICES, INC JUL 1 5 2008 4904 GRIGGS ROAD HOUSTON, TEXAS 77021 TRUCK ROUTE SEQUENCE WAREHOUSE INVOICE No. DELIVERY NOTE No. CLERK 70292 25119-0 alex ORDER DATE DELIVERY DATE INVOICE DATE SALESREP CUSTOMER SALES TAX LICENSE No. TERMS PAGE 07 2008 | 07 | 07 3 NET 30 DAYS 2008 07 07 2008 07 1 CUSTOMER CODE REQUISITION NO. CUSTOMER ORDER NO. BILL OF LADING NO. SHIPPED VIA CES001 375396 25119-0 CPU CYLINDERS QTY.ORD GAS CODE DESCRIPTION CLASS UN VOLUME PRICE U/M TRUOMA RETID 12.2500CYL OXYK OXYGEN K 249 CFT 1072 0 2.2 4 4.00 49.00 1 ACETWTL ACETYLENE WTL 390 CFT 2.1 1001 0 1 1.00 100.0000CYL 100.00 TOTAL SUB-TOTAL HAZMAT CHARGE TRANSPORT SALES TAX 149.00 0.00 0.00 12.29 161.29

ADMINISTRATION FEE

18% PER YEAR, CALCULATED MONTHLY AT THE RATE OF 1.5%, ON ALL OVERDUE ACCOUNTS

MATERIAL SAFETY DATA SHEETS AVAILABLE IN A TRANSPORT EMERGENCY, CONTACT 1-800-424-9300



### Industrial Gases • Welding Supplies and Equipment **ADVANCED GAS & EQUIPMENT**

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Sales - Rental - Repair

DELIVERY NOTE SOLD TO SHIPPED TO CES ENVIROMENTAL SERVICES, INC 4904 GRIGGS ROAD SAME AS "SOLD TO" HOUSTON, TEXAS 77021 (713) 676-1460 DELIVERY NOTE NO. ENTERED BY TRUCK ROUTE SEQUENCE WAREHOUSE 25119-0 alex INVOICE DATE REFERENCE NO. STATE TAX LICENSE NO TERMS ORDER DATE **DELIVERY DATE** PAG 1 NET 30 DAYS 25119 2008 07 07 2007 37 CUSTOMER CODE CUSTOMER'S ORDER NO. REQUISITION NO. BILL OF LADING NO. SHIPPED VIA **CES001** 25119 - 0CPU CYLINDERS **DESCRIPTION** PRICE **GAS CODE** CLASS UN VOLUME U/M **AMOUNT** ORDERED **DANGEROUS GOODS** 4 OXYGEN K 249 CFT 2.2 072 12.250dYL OXYK 2.1001 ACETWIL ACETYLENE WIL 390 CFT 100.000dYL STOCK NO. DESCRIPTION Thank You! SUB TOTAL HAZMAT CHARGES TRANSPORT SALES TAX DRIVER TOTAL GOODS RETURNED, UNLESS DEFECTIVE OR NOT ACCORDING TO ORDER, WILL BE SUBJECT TO A HANDLING CHARGE. CYLINDERS ARE RETURNED IN APPARENT GOOD ORDER, BUT ARE SUBJECT TO ADDITIONAL INSPECTION IN OUR PLANT. MSDS DATA SHEETS AVAILABLE SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT

ALL SALES ARE SUBJECT TO THE TERMS AND CONDITIONS ON THE BACK HEREOF WHICH BUYER ACKNOWLEDGES HAVING READ AND WHICH ARE PART OF THIS SALE OR TO ALL TERMS AND CONDITIONS TO WHICH PARTIES HAVE AGREED IN A WRITTEN CONTRACT.

TERMS: ALL BILLS DUE AND PAYABLE NET 30 DAYS. A FINANCE CHARGE OF 1.5% PER MONTH WHICH IS AN ANNUAL PERCENTAGE RATE OF 18%, WILL BE CHARGED ON ALL ACCOUNTS 30 DAYS PAST DATE OF NOTICE.

CALL CHEMTREC . DAY OR NIGHT 800-424-9300

PRINT NAME

CUSTOMER'S SIGNATURE

ALL GOODS REMAIN THE PROPERTY OF THE SELLER UNTIL FINAL PAYMENT IS MADE.

RED'D BY:

EPAHO055000018

Purchase	Order Request Form		P.O. Number:	3/53	76
<b>√</b>			Date:	7-7-0	8
Vendor':	Advance Gas				
Contact:	Alex				
Phone:	713-648-3443				
Item #	Description			Quantity	Cost
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	(FA)				
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Submitted By	: Jorge				· · · · · · · · · · · · · · · · · · ·
Approved By	: Julinta	)			
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Trans SGA MRI			Give Vendor	Re-Sale Certif	icate
DRM DSP		<del></del>	Vendor to Ch	arge Sales Tax	

ALL GOODS REMAIN THE PROPERTY OF THE SELLER UNTIL FINAL PAYMENT IS MADE.

#### Industrial Gases • Welding Supplies and Equipment

## **ADVANCED GAS & EQUIPMENT**

6200 South Loop East • Houston, TX 77087 (713) 645-3443 • FAX (713) 645-6869

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Sales - Rental - Repair

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PRINT NAME

RED'D BY:

EPAHO055000020

6200 SOUTH LOOP EAST HOUSTON, TEXAS 77087

TEL.: (713) 645-3443 FAX: (713) 645-6869

124.69



Please remit to: ADVANCED GAS & EQUIPMENT, INC 6200 South Loop East Houston, TX 77087

RECEIVED INVOICE SOLD TO SHIPPED TO CES ENVIROMENTAL SERVICES, 4904 GRIGGS ROAD HOUSTON, TEXAS 77021 TRUCK ROUTE SEQUENCE INVOICE No. DELIVERY NOTE No. WAREHOUSE CLERK 70364 25437-0 alex DELIVERY DATE INVOICE DATE ORDER DATE SALESREP CUSTOMER SALES TAX LICENSE No. TERMS PAGE 2008 07 15 2008 07 | 15 2008 07 3 NET 30 DAYS 15 1 CUSTOMER CODE CUSTOMER ORDER NO. REQUISITION NO. BILL OF LADING NO. SHIPPED VIA CES001 25437-0 CPU DESCRIPTION U/M QTY ORDERED STOCK NO. B/ORDR QTY DEL PRICE AMOUNT REG ARG/NIT 0-200PSIG 77.3000EA 77.30 1.00 SMI 30150580 1.00 7.00 STA WELDCAP WELDERS CAP 7.00 6.7700EA 47.39 TOTAL HAZMAT CHARGE TRANSPORT SUB-TOTAL SALES TAX

ADMINISTRATION FEE

10.29

18% PER YEAR, CALCULATED MONTHLY AT THE RATE OF 1.5%, ON ALL OVERDUE ACCOUNTS

MATERIAL SAPETY DATA SHEETS AVAILABLE IN A TRANSPORT EMERGENCY, CONTACT 1-800-424-9300

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ROUTE

TRUCK

#### Industrial Gases • Welding Supplies and Equipment

**ADVANCED GAS & EQUIPMENT** 

6200 South Loop East • Houston, TX 77087

ENTERED BY

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DELIVERY NOTE NO.

Sales - Rental - Repair

(713) 645-3443 • FAX (713) 645-6869 DELIVERY NOTE SOLD TO SHIPPED TO

CES ENVIROMENTAL SERVICES, INC 4904 GRIGGS ROAD HOUSTON, TEXAS 77021 (713) 676-1460

WAREHOUSE

SEQUENCE

SAME AS "SOLD TO"

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PRINT NAME

SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT CALL CHEMTREC . DAY OR NIGHT 800-424-9300

ALL GOODS REMAIN THE PROPERTY OF THE SELLER UNTIL FINAL PAYMENT IS MADE.

RED'D BY:

# Order Request Form P.O. Number: 3754

	Date: 7-15-08	•
Vendor:	Advance Gas.	
Contact:	Alex	
Phone: _	713-645-3443	ζ
Item #	<u>Description</u> <u>Quantity</u>	Cost \$
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Submitted B	y: Jose	
Approved B	y:	
	- V	
	Office Use Only	. "
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FS Trans SGA MRI		

## **ADVANCED GAS & EQUIPMENT, INC.** 6200 SOUTH LOOP EAST

HOUSTON, TEXAS 77087

TEL<sup>4</sup>. (713) 645-3443 FAX: (713) 645-6869



Please remit to: ADVANCED GAS & EQUIPMENT, INC 6200 South Loop East Houston, TX 77087

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ADMINISTRATION FEE

18% PER YEAR, CALCULATED MONTHLY AT THE RATE OF 1.5%, ON ALL OVERDUE ACCOUNTS

MATERIAL SAFETY DATA SHEETS AVAILABLE IN A TRANSPORT EMERGENCY, CONTACT 1-800-424-9300

OFFICE COPY



## ADVANCED GAS & EQUIPM

6200 South Loop East · Houston, TX

	OFFICE	COF	PΥ
-	Rental	-	Repair

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<b>ADVANCED</b> GAS	(713) 645-3443 • FAX (713) 645-6869
SOLD TO	SHIPPED TO

SAME AS "SOLD TO"

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SUBJECT TO ADDITIONAL INSPECTION IN OUR PLANT.

HANDLING CHARGE.

SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT CALL CHEMTREC • DAY OR NIGHT

ALL SALES ARE SUBJECT TO THE TERMS AND CONDITIONS ON THE BACK HEREOF WHICH BUYER ACKNOWLEDGES HAVING READ AND WHICH ARE PART OF THIS SALE OR TO ALL TERMS AND CONDITIONS TO WHICH PARTIES HAVE AGREED IN A WRITTEN CONTRACT.

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800-424-9300

ALL GOOD	S REN	T NIAN	HE PR	OPERT	Y OF THE
SELLER	UNTIL	FINAL	PAYM	ENT IS	MADE.

PRINT NAME

RED'D BY:

## Order Request Form P.O. Number: Vendor: Advance Eas. Contact: 713-648-3443 Phone: Item # Description Quantity Cost \$ Approved By: \_\_\_\_ Office Use Only Job Expense: Internal Expense: Orases) What Job? CS FS Trans 🏯 Give Vendor Re-Sale Certificate ☐ Vendor to Charge Sales = x

EPAHO055000026

6200 SOUTH LOOP EAST HOUSTON, TEXAS 77087

TEL.: (713) 645-3443 FAX: (713) 645-6869



Please remit to:
ADVANCED GAS & EQUIPMENT, INC
6200 South Loop East
Houston, TX 77087

INVOICE JUL 1 9 2008 SOLD TO SHIPPED TO CES ENVIROMENTAL SERVICES, 4904 GRIGGS ROAD HOUSTON, TEXAS 77021 TRUCK ROUTE SEQUENCE WAREHOUSE DELIVERY NOTE No. CLERK INVOICE No. 70495 25556-0 tony ORDER DATE DELIVERY DATE INVOICE DATE SALESREP CUSTOMER SALES TAX LICENSE No. TERMS PAGE 3 NET 30 DAYS 2008 07 2008 07 17 2008 07 17 17 1 CUSTOMER CODE CUSTOMER ORDER NO. REQUISITION NO. BILL OF LADING NO. SHIPPED VIA CES001 JORGE TO CALL 25556-0 CPU CYLINDERS OTY ORD GAS CODE DESCRIPTION CLASS UN VOLUME PRICE U/M AMOUNT RET'D DEL'C C25T ARG 75%/CO2 25% 381CF 2.2 1956 23.7000CYL 1 1 23.70 1.00 OTY ORDERED DESCRIPTION B/ORDR STOCK NO. OTY DEL KNEEPADS FOAM POLYCAP 2.00 TIL 565 2.00 17.5000PR 35.00 SIN 70S603533 33.00 70S6 .035X33# MIG 33.00 37.95 1.1500LB 2.00 PRO 169725 NOZZLE 5/8" 2.00 9.9600EA 19.92 CONTACT TIP .035 25.00 PRO 000068 25.00 0.7800EA 19.50 SUB-TOTAL HAZMAT CHARGE TRANSPORT TOTAL SALES TAX 136.07 0.00 0.00 11.23 147.30

ADMINISTRATION FEE

18% PER YEAR, CALCULATED MONTHLY AT THE RATE OF 1.5%, ON ALL OVERDUE ACCOUNTS

MATERIAL SAPETY DATA SHEETS AVAILABLE IN A TRANSPORT EMERGENCY, CONTACT 1-800-424-9300



**ADVANCED GAS & EQUIPMENT** 

6200 South Loop East • Houston, TX 77087 (713) 645-3443 • FAX (713) 645-6869 .

OFFICE COPY

Sales - Rental - Repair

DELIVERY NOTE

SOLD TO

SHIPPED TO

CES ENVIROMENTAL SERVICES, INC 4904 GRIGGS ROAD HOUSTON, TEXAS 77021 (713) 676-1460

SAME AS "SOLD TO"

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CYLINDERS ARE RETURNED IN APPARENT GOOD ORDER, BUT ARE GOODS RETURNED, UNLESS DEFECTIVE OR NOT ACCORDING TO ORDER, WILL BE SUBJECT TO A SUBJECT TO ADDITIONAL INSPECTION IN OUR PLANT.

MSDS DATA SHEETS AVAILABLE

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CALL CHEMTREC • DAY OR NIGHT PAST DATE OF NOTICE.

SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT CHARGE OF 1.5% PER MONTH CALL CHEMTREC • DAY OR NIGHT PAST DATE OF NOTICE.

SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT CALL CHEMTREC • DAY OR NIGHT PAST DATE OF NOTICE.

SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT CALL CHEMTREC • DAY OR NIGHT PAST DATE OF NOTICE.

ALL GOODS	REMAIN	THE P	ROPERT	OF THE
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PRINT NAME

RED'D BY:

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- Purchase	Order Request For	-m	P.O. Number: Date:	3754	)4 28
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Contact:	Tony				
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6200 SOUTH LOOP EAST HOUSTON, TEXAS 77087

TEL.: (713) 645-3443 FAX: (713) 645-6869



Please remit to:
ADVANCED GAS & EQUIPMENT, INC
6200 South Loop East
Houston, TX 77087

SOLD TO					INVOIC	CE			lk	ECN	eyv.	41:[7]	SHIPPED TO
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ADMINISTRATION FEE

18% PER YEAR, CALCULATED MONTHLY AT THE RATE OF 1.5%, ON ALL OVERDUE ACCOUNTS

material safety data sheets available in a transport emergency, contact 1-800-424-9300



ROUTE

SEQUENCE

TRUCK

#### Industrial Gases • Welding Supplies and Equipment

## ADVANCED GAS & EQUIPMENT

6200 South Loop East • Houston, TX 77087

ENTERED BY

tony

OFFICE COPY

DELIVERY NOTE NO.

25699-n

Sales - Rental - Repair

(713) 645-3443 • FAX (713) 645-6869 DELIVERY NOTE SOLD TO SHIPPED TO CES ENVIROMENTAL SERVICES, INC

4904 GRIGGS ROAD HOUSTON, TEXAS 77021 (713) 676-1460

WAREHOUSE

SAME AS "SOLD TO"

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CES001		JORGE		L BACK 375	514	AEQU	ISITION NO.		256	BILL OF LADING	NO.	9HIPPED VIA
QUANTITY ORDERED	GAS	CODE	C	DESCRIPTIO DANGEROUS GO	N DODS	CLAS	s UN		DERS	VOLUME	PRICE	U/M AMOUNT
a	OXYK		OXYGEN	I K 249 CFT		2.2	1072	0	2	7.00	12.250c	YL 85.75
3	C25T		ARG <b>7</b> 5	5%/co2 25% 38	1CF	2.2	1956	0	3	3.00	23.7000	YL 71.10
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					Thank ?	You!						
DRIVER		SUB TO	DTAL 156.85	HAZMAT CHARGES		.00	0.0	00	SA	12.94	TOTAL	184.79
CYLINDERS A	ARE RETURN	· .		ORDER, BUT ARE GOODS					RDER, WIL		MSDS (	DATA SHEETS AVAILABLE

SUBJECT TO ADDITIONAL INSPECTION IN OUR PLANT.

HANDLING CHARGE.

ALL SALES ARE SUBJECT TO THE TERMS AND CONDITIONS ON THE BACK
HEREOF WHICH BUYER ACKNOWLEDGES HAVING READ AND WHICH ARE
PART OF THIS SALE OR TO ALL TERMS AND CONDITIONS TO WHICH
PARTIES HAVE AGREED IN A WRITTEN CONTRACT.

SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT
WHICH IS AN ANNUAL PERCENTAGE RATE OF 18%, WILL BE CHARGED ON ALL ACCOUNTS 30 DAYS

CALL CHEMTREC • DAY OR NIGHT

BOO-424-9300

PRINT NAME

CUSTOMER'S SIGNATURE

ALL GOOD	S REMAI	N THE P	ROPERT	OF THE
SELLER	UNTIL FIR	VAL PAY	MENT IS	MADE.

RED'D BY:

EPAHO055000031

Purchase C	order Request Form	l	P.O. Number:	3755	14
			Date:	7-27-	<u>08</u> _
Vendor:	Admance Gas				
Contact:	Tony				
Phone:	713-645-3443				
Item#	Description			Quantity	Cost
-	Oxiden				
	C-25			_3	
-		<del></del>			
***************************************					<del></del>
					, <del>, , , , , , , , , , , , , , , , , , </del>
(	P.A )	<del></del>		, <u>.</u>	All designation of the second second
					184.79
Submitted By:	Jeige				
Approved By:					
		Office Use Only		·	
Internal Expens	se:	Job Expense:			
FS Trans		What .	Job? Port	Arthur.	
SGA	é		Give Vendor	Re-Sale Certif	icate
MRI DRM DSP			Vendor to Cha	arge Sales Tax	

6200 SOUTH LOOP EAST HOUSTON, TEXAS 77087

TEL.: (713) 645-3443 FAX: (713) 645-6869



Please remit to: ADVANCED GAS & EQUIPMENT, INC 6200 South Loop East Houston, TX 77087

	-	•	.0003		Advance	<b>d</b> Gas								
SOLD T					TWVOTE	E								SHIPPED TO
	4904	GRIGG	OMENTAL SERVICES, GS ROAD TEXAS 77021	INC										
TRUCK	ROUTE	SEQUENCE	WAREHOUSE	T	CLERK				INV	OICE N	o.	DELIV	ERY NO	OTE No.
				col	leen					743		2	5756	6-0
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3				NET	30 DAYS	200	08 0.	7 23	2008	07 2	23 20	08 07	23	1
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ADMINISTRATION FEE

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18% PER YEAR, CALCULATED MONTHLY AT THE RATE OF 1.5%, ON ALL OVERDUE ACCOUNTS

MATERIAL SAPETY DATA SHEETS AVAILABLE
IN A TRANSPORT EMERGENCY, CONTACT
1-800-424-9300

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## ADVANCED GAS & EQUIPMENT

6200 South Loop East • Houston, TX 77087

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Sales - Rental - Repair

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ALL GOODS REMAIN THE PROPERTY OF THE SELLER UNTIL FINAL PAYMENT IS MADE.

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RED'D BY:

Purchase	Order Request For	m	P.O. Number:	3755	14
			Date:	7-22-	08_
Vendor:	Advance Gas			<del>and the second </del>	
Contact:	Tony				
Phone:	713-645-3443				
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	P.A				Agenty Comments
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	For	Office Use Only	7	<del></del>	
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MRI DRM	e an 🎺	-	Vendor to Cha	arge Sales Ta	Χ.

6200 SOUTH LOOP EAS HOUSTON, TEXAS 77087

TEL.: (713) 645-3443 FAX: (713) 645-6869



Please remit to:
ADVANCED GAS & EQUIPMENT, INC
6200 South Loop East
Houston, TX 77087

		,			ADVANCE	<b>D</b> GAS						* 1		
SGLD T	CES 4904	GRIG	DMENTAL SERVICES, SS ROAD FEXAS 77021	INC	BANVO) KG	E			JUL IKIN	3 1	2008		энірряр то	
TRUCK	ROUTE	SEQUENCE	WAREHOUSE		CLERK INV					CE No.	E No. DELIVERY NOTE No.			
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ADMINISTRATION FEE

18% PER YEAR, CALCULATED MONTHLY AT THE RATE OF 1.5%, ON ALL OVERDUE ACCOUNTS

MATERIAL SAFETY DATA SHEETS AVAILABLE
IN A TRANSPORT EMERGENCY, CONTACT
1-800-424-9300



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6200 South Loop East • Houston, TX 77087 (713) 645-3443 • FAX (713) 645-6869

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Sales - Rental - Repair

DELIVERY NOTE

SOLD TO

CES ENVIROMENTAL SERVICES, INC

(713) 676-1460

4904 GRIGGS ROAD

HOUSTON, TEXAS 77021

SHIPPED TO

SAME AS "SOLD TO"

TRUCK	ROUTE	SEQUEN	ÇE	WAREHOUSE	EN	TERED BY		-	1. 2.000		io (o,	DE DE	LIVERY NOTE NO
807		(3	)		alex								25934-0
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12	OXYK		OXYGEN	K 249 CFT		2.2	1072	(SP	12	12.00	12.	250C <b>YL</b>	147.00
3	C25T		ARG 75%	s/CO2 25% 381	.CF	2.2	1956	3	3	3.00	23.	7000 <b>Y</b> L	71.10
1	ACETWS	L	ACETYLE	ENE WSL 130 C	FT	2.1	1001	1	7	1.00	36.	750 <b>0XI</b> .	36.75
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RED'D BY:

PART OF THIS SALE OR TO ALL TERMS AND CONDITIONS TO WHICH PAST DATE OF NOTICE. PARTIES HAVE AGREED IN A WRITTEN CONTRACT.

800-424-9300

ALL GOODS REMAIN THE PROPERTY OF THE SELLER UNTIL FINAL PAYMENT IS MADE.

PRINT NAME

Purchase	Order Request Forn	P.O. Numbe	r: <u>3755</u>	84
		Date:	7-28-0	<del>2</del> 8
Vendor:	Advance Gas			
Contact:				
Phone:		ş		
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Item#	Description		Quantity	Cost
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Submitted By	: Dolge			
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	For (	Office Use Only	mrs	<u> </u>
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Trans SGA			or Re-Sale Certi	
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DRM		Vendor to 0	Charge Sales Tax	X

6200 SOUTH LOOP EAST HOUSTON, TEXAS 77087

TEL.: (713) 645-3443 FAX: (713) 645-6869



Please remit to: ADVANCED GAS & EQUIPMENT, INC 6200 South Loop East Houston, TX 77087

INVOICE SOLD TO SHIPPED TO CES ENVIROMENTAL SERVICES, 4904 GRIGGS ROAD AUG 0 2 2008 HOUSTON, TEXAS 77021 TRUCK ROUTE SEQUENCE WAREHOUSE CLERK INVOICE No. DELIVERY NOTE No. alex 71051 26078-0 ORDER DATE DELIVERY DATE INVOICE DATE SALESREP CUSTOMER SALES TAX LICENSE NO TERMS PAGE NET 30 DAYS 2008 07 31 2008 07 31 2008 07 1 CUSTOMER CODE CUSTOMER ORDER NO. REQUISITION NO. BILL OF LADING NO. SHIPPED VIA CES001 375633 26078-0 CPU CYLINDERS CLASS QTY.ORD GAS CODE DESCRIPTION UN VOLUME PRICE U/M TRUOMA RET'D DEL'D 1 ACETWSL ACETYLENE WSL 130 CFT 2.1 1 1001 1 1.00 36.7500CYL 36.75 1 AIRZEROT AIR ZERO 300 T 2.2 1002 1 46.5000CYL 46.50 1 1.00 SUB-TOTAL HAZMAT CHARGE TRANSPORT SALES TAX TOTAL 83.25 0.00 0.00 90.12 6.87

ADMINISTRATION FEE

18% PER YEAR, CALCULATED MONTHLY AT THE RATE OF 1.5%, ON ALL OVERDUE ACCOUNTS

MATERIAL SAFETY DATA SHEETS AVAILABLE
IN A TRANSPORT EMERGENCY, CONTACT
1-800-424-9300



SEQUENCE

#### Industrial Gases • Welding Supplies and Equipment

## **ADVANCED GAS & EQUIPMENT**

6200 South Loop East • Houston, 1X 77087 (713) 645-3443 • FAX (713) 645-6869

**OFFICE COPY** 

DELIVERY NOTE NO.

Sales - Rental - Repair

DELIVERY NOTE

SOLD TO

CES ENVIROMENTAL SERVICES, INC

SHIPPED TO

4904 GRIGGS ROAD HOUSTON, TEXAS 77021 (713) 676-1460

WAREHOUSE

SAME AS "SOLD TO"

				alex							2 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	26078-0
REFERENCE	I I	STATE TAX LIC	CENSE NO.		TERI	MS ·		OR	DER DATE	DELIVERY	DATE	INVOICE DATE P
26078	}			NET	30 DAYS			2008	07 31	20030	7 31	
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CES001	. 37563	3	•					260	78-0		CPU	
QUANTITY ORDERED	GAS CODE	DA	DESCRIPTIO NGEROUS GO	N DODS	CLAS	s UN	CYLIN		VOLUME	PRIC	E U/M	AMOUNT
1	ACETWSL	ACETYLE	NE WSL 130	CFT	2.1	1001	1	'	1.00	36.7	50CYL	36.75
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SUBJECT TO ADDITIONAL INSPECTION IN OUR PLANT.

HANDLING CHARGE.

SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDEN

ALL SALES ARE SUBJECT TO THE TERMS AND CONDITIONS ON THE BACK
HEREOF WHICH BUYER ACKNOWLEDGES HAVING READ AND WHICH ARE
WHICH IS AN ANNUAL PERCENTAGE RATE OF 18%, WILL BE CHARGED ON ALL ACCOUNTS 30 DAYS
PART OF THIS SALE OR TO ALL TERMS AND CONDITIONS TO WHICH
PAST DATE OF NOTICE.

PARTIES HAVE AGREED IN A WRITTEN CONTRACT.

CALL CHEMTREC . DAY OR NIGHT 800-424-9300

ALL GOODS REMAIN THE PROPERTY OF THE SELLER UNTIL FINAL PAYMENT IS MADE.

RED'D BY:

PRINT NAME



### ADVANCED GAS & EQUIPMENT

6200 South Loop East • Houston, TX 77087 (713) 645-3443 • FAX (713) 645-6869

CUSTOMER'S COPY

Sales Rental - Repair

DELIVERY NOTE SOLD TO SHIPPED TO CES ENVIROMENTAL SERVICES, INC 4904 GRIGGS ROAD HOUSTON, TEXAS 77021 SAME AS "SOLD TO" (713) 676-1460 DELIVERY NOTE NO. TRUCK ROUTE SEQUENCE WAREHOUSE **ENTERED BY** 26078-0 alex INVOICE DATE REFERENCE NO. STATE TAX LICENSE NO. TERMS ORDER DATE **DELIVERY DATE** 26078 NET 30 DAYS 2008 07 CUSTOMER CODE CUSTOMER'S ORDER NO. REQUISITION NO. BILL OF LADING NO. SHIPPED VIA **3756**33 **CES001** 26078-0 CPU DESCRIPTION DANGEROUS GOODS CYLINDERS QUANTITY **GAS CODE CLASS** UN VOLUME PRICE U/M **AMOUNT** ORDERED 1 36.75 ACETWSL ACETYLENE WSL 130 CFT 2.1 1001 1 1.00 36.750CML ATRZEROT ATR ZERO 300 T 2 2 1.00 46 500CM 46.50

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DRIVER	3081	IOIAL	TALIVIA I CHANGES	ITANSPORT	1			) SA	ILES INV			

CYLINDERS ARE RETURNED IN APPARENT GOOD ORDER, BUT ARE SUBJECT TO ADDITIONAL INSPECTION IN OUR PLANT.

83.25

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GOODS RETURNED, UNLESS DEFECTIVE OR NOT ACCORDING TO ORDER, WILL BE SUBJECT TO A HANDLING CHARGE

0.00

MSDS DATA SHEETS AVAILABLE SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT

90.12

ALL SALES ARE SUBJECT TO THE TERMS AND CONDITIONS ON THE BACK HEREOF WHICH BUYER ACKNOWLEDGES HAVING READ AND WHICH ARE TERMS: ALL BILLS DUE AND PAYABLE NET 30 DAYS. A FINANCE CHARGE OF 1.5% PER MONTH WHICH IS AN ANNUAL PERCENTAGE RATE OF 18%, WILL BE CHARGED ON ALL ACCOUNTS 30 DAYS PART OF THIS SALE OR TO ALL TERMS AND CONDITIONS TO WHICH PARTIES HAVE AGREED IN A WRITTEN CONTRACT. PAST DATE OF NOTICE.

PRINT NAME

0.00

**CALL CHEMTREC • DAY OR NIGHT** 800-424-9300

ALL GOODS REMAIN THE PROPERTY OF THE SELLER UNTIL FINAL PAYMENT IS MADE.

THOMAS RED'D BY:

CUSTOMER'S SIGNATURE

TOTAL

6.87

Order Request Form Date: 7- 31-08 Vendor: ADVANCE GAS Contact: Phone: Item# Description Quantity Cost \$ ZERO AIR Boms ACETYLENE 1 BOTTLE 100.00 Submitted By: \_\_ Approved By: \_\_\_\_ Office Use Only Internal Expense: Job Expense: Charaes FS

☐ Vendor to Charge Sales = 1x

6200 SOUTH LOOP EAST HOUSTON, TEXAS 77087

TEL.: (713) 645-3443 FAX: (713) 645-6869



Please remit to:

■ ADVANCED GAS & EQUIPMENT, INC
6200 South Loop East
Houston, TX 77087

INVOICE AUG 0 2 2008 SOLD TO SHIPPED TO CES ENVIROMENTAL SERVICES, 4904 GRIGGS ROAD HOUSTON, TEXAS 77021 TRUCK ROUTE SEQUENCE WAREHOUSE CLERK INVOICE No. DELIVERY NOTE No. tony 71010 26026-0 ORDER DATE DELIVERY DATE INVOICE DATE SALESREP CUSTOMER SALES TAX LICENSE NO TERMS PAGE NET 30 DAYS 2008 07 30 2008 07 30 2008 07 30 1 CUSTOMER CODE CUSTOMER ORDER NO. REQUISITION NO. BILL OF LADING NO. SHIPPED VIA CES001 375599 26026-0 CPU QTY ORDERED DESCRIPTION B/ORDR U/M STOCK NO. OTY DEL PRICE TRUOMA 2.00 SMI 3020540 REG OXYGEN 0-20 PSIG OUTLET 73.4900EA 146.98 2.00 2.00 SMI 3015510 REG ACET CGA 510 2.00 69.1600EA 138.32 618 Mes TOTAL SUB-TOTAL HAZMAT CHARGE TRANSPORT SALES TAX 285.30 0.00 0.00 23.54 308.84

ADMINISTRATION FEE

18% PER YEAR, CALCULATED MONTHLY AT THE RATE OF 1.5%, ON ALL OVERDUE ACCOUNTS

MATERIAL SAFETY DATA SHEETS AVAILABLE IN A TRANSPORT EMERGENCY, CONTACT 1-800-424-9300



ADVANCED GAS & EQUIPMENT

6200 South Loop East • Houston, TX 77087 (713) 645-3443 • FAX (713) 645-6869

SHIPPED TO

OFF	ICE	COPY	
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Sales - Rental - Repair

DELIVERY NOTE

**Advanced**Gas SOLD TO

CES ENVIROMENTAL SERVICES, INC

(713) 676-1460

4904 GRIGGS ROAD

HOUSTON, TEXAS 77021

SAME AS "SOLD TO"

TRUCK	ROUTE	SEQUENCE	WAREHOUSE	ENTERED BY	SelyH		्रीहर्ष	iG (136).	E	and the first	26-0
REFERENCE N	o.   🐉	STAT	E TAX LICENSE NO.	TEI	RMS		R DATE	DELIVERY	DATE	INVOIC	E DATE
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OLIANTITY						BACK	QUANTIT				
QUANTITY ORDERED	1	3020540	REG OXYGEN 0-	DESCRIPTION		ORDER		D	90EA		146.98
2.00		3015510	REG ACET CGA				2		60EA		138.32
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		i H	F	Thank You!							
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SUBJECT TO ADDITIONAL INSPECTION IN OUR PLANT.

HANDLING CHARGE.

ALL SALES ARE SUBJECT TO THE TERMS AND CONDITIONS ON THE BACK HEREOF WHICH BUYER ACKNOWLEDGES HAVING READ AND WHICH ARE PART OF THIS SALE OR TO ALL TERMS AND CONDITIONS TO WHICH PARTIES HAVE AGREED IN A WRITTEN CONTRACT.

TERMS: ÁLL BILLS DUE AND PAYABLE NET 30 DAYS. A FINANCE CHARGE OF 1.5% PER MONTH
WHICH IS AN ANNUAL PERCENTAGE RATE OF 18%, WILL BE CHARGED ON ALL ACCOUNTS 30 DAYS

SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT
CALL CHEMTREC • DAY OR NIGHT PAST DATE OF NOTICE.

800-424-9300

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8FI	I FR III	NTH FINA	L PAYME	NT IS I	MADE.

PRINTINAME RED'D BY:

CUSTOMER'S SIGNATURE

EPAHO055000044

Purchase	Order Request Form	P.O. Number:	213599					
		Date:	7-30-	08				
Vendor:	Advanced Gas							
Contact:	Tony							
Phone:	713-645-3443.							
Item#	Description		Quantity	Cost				
	Acetylene regulators		Z					
	Oxigen regulators							
			***************************************					
	Duco Inc. Job							
				308.84				
Submitted By Approved By	MM							
	For Office Use Only		<i>,</i>					
Internal Exper  CS FS Trans S6A MRI DRM DSP	what.	Job?OO Give Vendor I Vendor to Cha						

6200 SOUTH LOOP EAST HOUSTON, TEXAS 77087

TEL.: (713) 645-3443 FAX: (713) 645-6869



Please remit to:

ADVANCED GAS & EQUIPMENT, INC

6200 South Loop East Houston, TX 77087

INVOICE SOLD TO SHIPPED TO CES ENVIROMENTAL SERVICES, AUG 0 2 2008 4904 GRIGGS ROAD HOUSTON, TEXAS 77021 TRUCK ROUTE SEQUENCE WAREHOUSE CLERK INVOICE No. DELIVERY NOTE No. alex 70999 26014-0 ORDER DATE DELIVERY DATE INVOICE DATE SALESREP CUSTOMER SALES TAX LICENSE No. TERMS PAGE NET 30 DAYS 2008 | 07 | 29 | 2008 | 07 | 30 |2008|07|30 3 1 CUSTOMER CODE CUSTOMER ORDER NO. REQUISITION NO. BILL OF LADING NO. SHIPPED VIA CES001 375598 26014-0 CPU QTY ORDERED STOCK NO. DESCRIPTION B/ORDR QTY DEL PRICE U/M AMOUNT 4.00 BES RH2103 1/4" X 50' GR R TWIN 36.6800EA 146.72 4.00 HOSE 3.00 GEN QCHTPRSP QUICK CONNECT HOSE -3.00 45.9100EA 137.73 TORCH 4.00 ACET CUTTING TIP #2 VIC CS21101 4.00 12.0000EA 48.00 COUPLER, HOSE 2.00 WES 30 2.00 1.0400EA 2.08 2.00 2.00 WES 31 1.0600EA COUPLER, HOSE 2.12 HAZMAT CHARGE TOTAL SUB-TOTAL TRANSPORT SALES TAX 336.65 0.00 0.00 27.76 364.41

ADMINISTRATION FEE

18% PER YEAR, CALCULATED MONTHLY AT THE RATE OF 1.5%, ON ALL OVERDUE ACCOUNTS



HOUSTON, TEXAS

77021 (713) 676-1460

### Industrial Gases • Welding Supplies and Equipment

# ADVANCED GAS & EQUIPMENT

OFFICE COPY

Sales - Rental - Repair

6200 South Loop East • Houston, TX 77087 (713) 645-3443 • FAX (713) 645-6869 DELIVERY NOTE SOLD TO SHIPPED TO CES ENVIROMENTAL SERVICES, INC 4904 GRIGGS ROAD

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YLINDERS ARE RETURNED IN APPARENT GOOD ORDER, BUT ARE GOODS RETURNED, UNLESS DEFECTIVE OR NOT ACCORDING TO ORDER, WILL BE SUBJECT TO A 'IBJECT TO ADDITIONAL INSPECTION IN OUR PLANT. HANDLING CHARGE.

MSDS DATA SHEETS AVAILABLE SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT

L SALES ARE SUBJECT TO THE TERMS AND CONDITIONS ON THE BACK REOF WHICH BUYER ACKNOWLEGGES HAVING READ AND WHICH ARE IT OF THIS SALE OR TO ALL TERMS AND CONDITIONS TO WHICH TIES HAVE AGREED IN A WRITTEN CONTRACT.

TERMS; ALL BILLS DUE AND PAYABLE NET 30 DAYS. A FINANCE CHARGE OF 1.5% PER MONTH WHICH IS AN ANNUAL PERCENTAGE RATE OF 18%, WILL BE CHARGED ON ALL ACCOUNTS 30 DAYS PAST DATE OF NOTICE.

**CALL CHEMTREC • DAY OR NIGHT** 800-424-9300

ALL GOODS REMAIN THE PROPERTY OF THE SELLER UNTIL FINAL PAYMENT IS MADE.

PRINT NAME

RED'D BY:

CUSTOMER'S SIGNATURE

Purchase	<b>Order Request Form</b>	P.O. Number	r: 3/55	5 98
		Date:	7-30-	0B
Vendor:	Advanced Gas.			
Contact:	Alex			
Phone:	713-645-3443			
Item #	Description		Quantity	Cost
	Torch kit			
			Annual Approximation of the second of the se	
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		Jap.		
				36441.
Submitted By Approved By	$\sim \sim M$		B	
<del></del>	For O	Office Use Only		
Internal Exper	nse:	<del></del>	or Re-Sale Certi	
DRM		vendor to 0	Charge Sales Ta	X

6200 SOUTH LOOP EAST HOUSTON, TEXAS 77087

TEL.: (713) 645-3443 FAX: (713) 645-6869



Please remit to: ADVANCED GAS & EQUIPMENT, INC 6200 South Loop East Houston, TX 77087

INVOICE SHIPPED TO SOLD TO AUG 0 2 2008 CES ENVIROMENTAL SERVICES, INC 4904 GRIGGS ROAD HOUSTON, TEXAS 77021 TRUCK ROUTE SEQUENCE INVOICE No. DELIVERY NOTE No. WAREHOUSE CLERK alex 70998 26012-0 DELIVERY DATE INVOICE DATE ORDER DATE SALESREP CUSTOMER SALES TAX LICENSE NO TERMS PAGE NET 30 DAYS 07 29 2008 07 2008 07 30 1 2008 CUSTOMER CODE CUSTOMER ORDER NO. REQUISITION NO BILL OF LADING NO SHIPPED VIA CES001 26012-0 CPU 375597 QTY ORDERED B/ORDR QTY DEL PRICE U/M TRUOMA STOCK NO. DESCRIPTION 10.00 WEI 31367 7X5/8-11 36X PHENOLIC 10.00 10.8700EA 108.70 10.00 WEI 31349 4-1/2X4/8-11 36X PHEN 10.00 6.0200EA 60.20 GLOVE COW DRV STRAP XL 1.00 9.4200PR 9.42 1.00 TIL 1421XL 36.92 2.00 TIL 850M GLOVE ELK GOLD MED 2.00 18.4600PR 12.00 TIL 1421M GLOVE COW DRV STRAP M 12.00 9.4200PR 113.04 1.00 BEE 006S 6 X 2 X 5/8-11 CUP ROCK 1.00 18.8000EA 18.80 1.00 SPI 103 NUT/SPIRALCOOL PAD 1.00 3.8600EA 3.86 met Supplies TOTAL SUB-TOTAL HAZMAT CHARGE TRANSPORT SALES TAX 28.97 350.94 0.00 0.00 379.91

ADMINISTRATION FEE

18% PER YEAR, CALCULATED MONTHLY AT THE RATE OF 1.5%, ON ALL OVERDUE ACCOUNTS



CES ENVIROMENTAL SERVICES, INC

4904 GRIGGS ROAD

**SOLD TO** 

### Industrial Gases • Welding Supplies and Equipment

**ADVANCED GAS & EQUIPMENT** 6200 South Loop East . Houston, TX 77087 OFFICE COPY

Rental - Repair Sales -

DELIVERY NOTE

(713) 645-3443 • FAX (713) 645-6869

SHIPPED TO

	Е		EXAS 77021 713) 676-1460				SA	WE AS	"SOLD	TO'
TRUCK	ROUTE	SEQUENCE	WAREHOUSE	ENTERED BY	J.J.		Itov	GICE PG,	DI	ELIVERY NOTE NO. 26012-0
REFERENCE NO.	O.	STATE	TAX LICENSE NO.	NET 30 DA	TERMS YS	Marun Grup 1 .	07 29	DELIVERY	07 2-9	INVOICE DATE PAGE 1
CUSTOMER CES001	CODE	<sup>20</sup> 37′	CUSTOMER'S ORDER NO.	 	REQUISITION NO.		BILL OF LADIN		CPU	SHIPPED VIA
ONDERED	GAS		DESCRIPTION DANGEROUS GO	ODS	ASS UN	INDERS  ED DELIVERED	VOLUME		E U/I	M AMOUNT
10.00 1.00 2.00 12.00 1.00	WEI WEI TIL TIL	103	7X5/8-11 36X P 4-1/2X4/8-11 3 GLOVE COW DRV GLOVE ELK GOLD GLOVE COW DRV 6 X 2 X 5/8-11 NUT/SPIRALCOOL	6X PHEN STRAP XL MED STRAP M CUP ROCK PAD		BACK ORDER	10/	10.8 6.0 9.4 18.4 2 18.4 18.8 18.8	370EA 020EA 120PR 160PR 120PR 300EA 360EA	108.70 60.20 9.42 36.92 113.04 18.80 3.86
DRIVER		SUB TOTAL 350.9	HAZMAT CHARGES  0.00	TRANSPORT 0.00	0.00	Ś	28.97	TOT/.		379.91

ALL GOODS REMAIN THE PROPERTY OF THE SELLER UNTIL FINAL PAYMENT IS MADE.

\*LINDERS ARE RETURNED IN APPARENT GOOD ORDER, BUT ARE GOODS RETURNED, UNLESS DEFECTIVE OR NOT ACCORDING TO ORDER, WILL BE SUBJECT TO A BJECT TO ADDITIONAL INSPECTION IN OUR PLANT.

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AREOF WHICH BUYER ACKNOWLEGGES HAVING READ AND WHICH ARE
WHICH IS AN ANNUAL PERCENTAGE RATE OF 18%, WILL BE CHARGED ON ALL ACCOUNTS 30 DAYS
PART OF THIS SALE OR TO ALL TERMS AND CONDITIONS TO WHICH
PARTIES HAVE AGREED IN A WRITTEN CONTRACT.

MSDS DATA SHEETS AVAILABLE SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT **CALL CHEMTREC • DAY OR NIGHT** 

800-424-9300

PRINT NAME

RED'D BY:

CUSTOMER'S SIGNATURE

EPAHO055000050

Purchase	Order Request Form	P.O. Number:	315597				
		Date:	7-30-	08			
Vendor:	Advanced Gas		distribution of the page of th				
Contact:	nex						
Phone:	713-645-3493						
Item #	Description		Quantity	Cost			
	MRI Supplies.		<del></del>	-			
				379.91			
Submitted By	: Jorge						
Approved By	· MM		H				
	For Office U	se Only					
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Trans SGA		Give Vendor I	Re-Sale Certif	īcate			
MRI DRM		Vendor to Cha	arge Sales Tax	<b>K</b>			

6200 SOUTH LOOP EAST HOUSTON, TEXAS 77087

TEL.: (713) 645-3443 FAX: (713) 645-6869

CYLINDERS REMAIN THE PROPERTY OF THE SELLER.



Please remit to:
ADVANCED GAS & EQUIPMENT, INC
6200 South Loop East
Houston, TX 77087

Sold To: Shipped To: CES ENVIROMENTAL SERVICES, AUG 0 7 2008 4904 GRIGGS ROAD HOUSTON, TEXAS 77021 CYLINDER RENTAL INVOICE CUSTOMER No. CUSTOMER ORDER No. PERTOD INVOICE DATE INVOICE NO. PAGE D-D 07 CES001 07/01-07/31 2008 71179 31 DATE CYLINDER STATEMENT DESCRIPTION DEL.NOTE No INVOICE NO AMOUNT CONTRACT CHARGE RATE M-M D-D BAL SUPPL RETURN NEW BAL ARGON T 336 CFT 2 70156 1125341 0 3 5.0000 15.00 ARG 75%/CO2 25% T 07 1725556 70495 1 3 0 07 2225699 70744 07 2925934 70968 3 3 0 5.0000 40.00 8 NIT K 228 CFT 3 3 0 0 0 3 5.0000 15.00 L OXYGEN K 249 CFT 11 07 0725119 70292 8 0 07 2225699 70744 2 0 07 2325756 70743 5 0 07 70968 12 11 2925934 07 3025935 71029 8 35 35 5.0000 0 175.00 ARGON LIQUID 0 07 0925167 70044 2 0 2 0 36.0000 72.00 PROPANE 20# 1 0 5.0000 5.00 ACETYLENE WSL 130CF 07 2925934 70968 1 3126078 71051 1 4 0 5.0000 20.00 4 SALES TAX TYPE: DEMURRAGE D - DAIL' N - FREE SUB-TOTAL MONTH END CONTINUED TAX : X = CHARGEABLE HIGHEST SALES TAX VALUE OF CYLINDER INVENTORY ON HAND TOTAL THIS INVOICE IS PAYABLE IN FULL UPON RECEIPT.

# **ADVANCED GAS & EQUIPMENT, INC.** 6200 SOUTH LOOP EAST

HOUSTON, TEXAS 77087

TEL.: (713) 645-3443 FAX: (713) 645-6869

THIS INVOICE IS PAYABLE IN FULL UPON RECEIPT. CYLINDERS REMAIN THE PROPERTY OF THE SELLER.



Please remit to: ADVANCED GAS & EQUIPMENT, INC 6200 South Loop East Houston, TX 77087

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CUSTOMER COPY

547.00

TOTAL

6200 SOUTH LOOP EAST HOUSTON, TEXAS 77087

TEL.: (713) 645-3443 FAX: (713) 645-6869



Please remit to: ADVANCED GAS & EQUIPMENT, INC 6200 South Loop East Houston, TX 77087

SOLD TO	)				INVOI	CE			1		AUG 0	0.00	)n.	SI	HIPPED TO		
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ADMINISTRATION FEE

18% PER YEAR, CALCULATED MONTHLY AT THE RATE OF 1.5%, ON ALL OVERDUE ACCOUNTS

material safety data sheets available in a transport emergency, contact 1-800-424-9300



### Industrial Gases • Welding Supplies and Equipment

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**ADVANCED GAS & EQUIPMENT** 

6200 South Loop East • Houston, TX 77087

Sales - Rental - Repair

(713) 645-3443 • FAX (713) 645-6869 **Advanced**Gas SOLD TO SHIPPED TO

CES ENVIROMENTAL SERVICES, INC

77021

4904 GRIGGS ROAD HOUSTON, TEXAS

DELIVERY NOTE

SAME AS "SOLD TO"

(713) 676-1460 DELIVERY NOTE NO. TRUCK ROUTE SEQUENCE WAREHOUSE **ENTERED BY** 26188-0 alex INVOICE DATE REFERENCE NO. STATE TAX LICENSE NO. TERMS ORDER DATE **DELIVERY DATE** 1 NET 30 DAYS 2008 08 04 26188 CUSTOMER CODE CUSTOMER'S ORDER NO. REQUISITION NO. BILL OF LADING NO. SHIPPED VIA 26188-0 OT **CES001** DESCRIPTION DANGEROUS GOODS QUANTILY ORDERED GAS CODE CLASS UN **VOLUME PRICE** U/M **AMOUNT** 365.000dxL 2.2 951 1.00 365.00 1 **ARGLIQ** ARGON LIQUID STOCK NO. DESCRIPTION Thank You! SUB TOTAL HAZMAT CHARGES TRANSPORT SALES TAX DRIVER TOTA 365.00 6.00 0.00 9.00 30.11 410.11 GOODS RETURNED, UNLESS DEFECTIVE OR NOT ACCORDING TO ORDER, WILL BE SUBJECT TO A HANDLING CHARGE. CYLINDERS ARE RETURNED IN APPARENT GOOD ORDER, BUT ARE SUBJECT TO ADDITIONAL INSPECTION IN OUR PLANT. MSDS DATA SHEETS AVAILABLE

SELLER UNTIL FINAL PAYMENT IS MADE.

RED'D BY:

ALL SALES ARE SUBJECT TO THE TERMS AND CONDITIONS ON THE BACK

HEREOF WHICH BUYER ACKNOWLEDGES HAVING READ AND WHICH ARE PART OF THIS SALE OR TO ALL TERMS AND CONDITIONS TO WHICH

ALL GOODS REMAIN THE PROPERTY OF THE

PARTIES HAVE AGREED IN A WRITTEN CONTRACT.

PRINT NAME

TERMS: ALL BILLS DUE AND PAYABLE NET 30 DAYS, A FINANCE CHARGE OF 1.5% PER MONTH WHICH IS AN ANNIIAL PERCENTAGE BATE OF 100 MILL OF CHARGE OF 1.5% PER MONTH

WHICH IS AN ANNUAL PERCENTAGE RATE OF 18%, WILL BE CHARGED ON ALL ACCOUNTS 30 DAYS PAST DATE OF NOTICE.

CUSTOMER'S SIGNATURE

EPAHO055000055

SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT

**CALL CHEMTREC • DAY OR NIGHT** 

800-424-9300

Purchase	Order Request Form	P.O. Number:	375672			
		Date:	8-4-08	3		
Vendor:	Advanced Gas.					
Contact:	Tony					
Phone:	713-645-3443					
Item #	Description		Quantity	Cost		
	Liquid Avgon					
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	(Pr					
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Submitted B	y: Joige.			710.11		
Approved By			$\sim 0$			
	For Office Use	e Only	7.11.	P		
Internal Expe  CS FS Trans SGA		oense: What Job? Give Vendor	Re-Sale Certi	ficate		
MRI DRM DSP		Vendor to Ch	arge Sales Ta	X		

6200 SOUTH LOOP EAST HOUSTON, TEXAS 77087

TEL.: (713) 645-3443 FAX: (713) 645-6869



Please remit to: ADVANCED GAS & EQUIPMENT, INC 6200 South Loop East Houston, TX 77087

SOLD	CES 4904	4 GRIGO	OMENTAL SERVICES, GS ROAD TEXAS 77021	INC	INVOIC	E.				AU,	<del>ी <b>0</b> ह</del>	<mark>8</mark> 200	8		SHIPPED TO
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QTY.OF	RD GA	S CODE	DESCRIPTION		CLASS	UN	CYLIN RETID	IDERS DEL'D	VOLUME		PRIC	ZE	U/M		AMOUNT
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OTY OR		STOC	<u> </u>	CAP	TION		В/О	RDR	1.00		6.7	7700E	EA		6.77
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ADMINISTRATION FEE

18% PER YEAR, CALCULATED MONTHLY AT THE RATE OF 1.5%, ON ALL OVERDUE ACCOUNTS

material sapety data sheets available in a transport emergency, contact 1-800-424-9300



### Industrial Gases • Welding Supplies and Equipment

**ADVANCED GAS & EQUIPMENT** 

6200 South Loop East • Houston, TX 77087 (713) 645-3443 • FAX (713) 645-6869

ENTERED BY

**OFFICE COPY** 

DELIVERY NOTE NO.

Sales - Rental - Repair

DELIVERY NOTE

ROUTE

SEQUENCE

WAREHOUSE

TRUCK

LD TO		SHIPPED TO
	CES ENVIROMENTAL SERVICES, INC 4904 GRIGGS ROAD HOUSTON, TEXAS 77021 (713) 676-1460	DESTAME AS SOLD TOWN

					colle	∍n						,	26159-0
<b>26159</b>	M-WET 6/5/7	######################################	STATE TAX LIC	CENSE NO.	NET 30	TERMS	3		BANG DUTE TO	DER DATE	2008 00	1	INVOICE DATE PAG
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QUANTITY ORDERED	GAS	CODE	D/	DESCRIPTION ANGEROUS GO		CLASS	5 UN	CYLINE CYLINE	, !	VOLUME	E PRICE	E U/M	AMOUNT
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DRIVE	R	SUB T	TOTAL	HAZMAT CHARGES	TRANSPOR		0.0		s	SALES TAX	TOTAL		75.5;

SUBJECT TO ADDITIONAL INSPECTION IN OUR PLANT.

HANDLING CHARGE.

PRINT NAME

SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT CALL CHEMTREC • DAY OR NIGHT

800-424-9300

ALL SALES ARE SUBJECT TO THE TERMS AND CONDITIONS ON THE BACK
HEREOF WHICH BUYER ACKNOWLEDGES HAVING READ AND WHICH ARE
PART OF THIS SALE OR TO ALL TERMS AND CONDITIONS TO WHICH
PARTIES HAVE AGREED IN A WRITTEN CONTRACT.

CUSTOMER'S SIGNATURE

ALL GOODS	REMAIN THE PROPERTY OF TH	łΕ
SELLER U	NTIL FINAL PAYMENT IS MADE.	

RED'D BY:

Purchase (	Order Request Form	P.O. Number:	375662				
		Date:	8-1-0	8			
Vendor:	Advanced						
Contact:	Alex						
Phone:	713-645-3443.		· ·				
Item #	Description		Quantity	Cost			
	Nitrogen		_6_				
ARTICLE STATE OF THE STATE OF T							
	(P.A)						
				57:50			
Submitted By	Jovan.			<u> </u>			
Approved By:		· · · · · · · · · · · · · · · · · · ·					
	For Offic	ce Use Only					
Internal Expen	se: Jo	b Expense:					
FS Trans		What Job?					
SGA MRI		Give Vendor					
DRM DSP		Vendor to Cha	arge Sales Ta	X			

### **ADVANCED GAS & EQUIPMENT, INC.** 6200 SOUTH LOOP EAST HOUSTON, TEXAS 77087

**ADVANCED**GAS

Please remit to: **ADVANCED GAS & EQUIPMENT, INC** 6200 South Loop East Houston, TX 77087

TEL.: (713) 645-3443 FAX: (713) 645-6869

270.55

SOLD TO

INVOICE

SHIPPED TO

	4904	GRIG	OMENTAL : GS ROAD FEXAS 7	SERVICES, 7021	INC					A	UG O	8 ZU	108		
TRUCK	ROUTE	SEQUENCE	s war	EHOUSE		CLERK				INVO	ICE No.		DELIVER	Y NOT	re no.
					alex					715	808		26	070	<b>-</b> 0
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3					NET 3	30 DAYS	20	0 80	7 31	2008	01	200	8 08	01	1
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QTY.OR	D GA	S CODE	DES	CRIPTION		CLASS	UN	CYLI RET'D	NDERS	VOLUME	P.	RICE	U/M		TRUOMA
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ЭТҮ OR		stor	50	6" .023 BEAD TWS		1 STRING		B/C	RDR	OTY DEL 5.00	14	.670	OOEA		73.35
S	SUB-TOTA	il.	HAZMAT	CHARGE	TRANS	SPORT	SAL	ES TAX					TOTA	L	

9.00

ADMINISTRATION FEE

22.32

18% PER YEAR, CALCULATED MONTHLY AT THE RATE OF 1.5%, ON ALL OVERDUE ACCOUNTS

MATERIAL SAPETY DATA SHEETS AVAILABLE IN A TRANSPORT EMERGENCY, CONTACT 1-800-424-9300

6.00

307.87



### Industrial Gases . Welding Supplies and Equipment

# ADVANCED GAS & EQUIPMENT ...

6200 South Loop East • Houston, TX 77087

OFFICE COPY

Sales - Rental - Repair

DELIVERY NOTE

(713) 645-3443 • FAX (713) 645-6869 **Advanced**Gas SOLD TO SHIPPED TO

> CES ENVIROMENTAL SERVICES, INC 49Q4 GRIGGS ROAD

HOUSTON, TEXAS 77021 (713) 676-1460 SAME AS "SOLD TO"

TRUCK	ROUTE SEQUE	NCE	WAREHOUSE	.	TERED BY		-0	The Property	# 110 <sub>7</sub>   1	DELIVERY NOTE NO.
804	<u> </u>	<u> </u>		alex						26070-0
REFERENCE	NO.	STATE TAX LIC	CENSE NO.		TERMS		OF	IDER DATE	DELIVERY DATE	INVOICE DATE
26070				NET	30 DAYS		2008	07 31	1 8 800	
CUSTOME			MLR'S ORDER NO.		REQUISIT	TON NO.		BILL OF LADING	NO.	SHIPPED VIA
CES001	po 3	756	35				260	70-0	O/T	
QUANTITY ORDERED	GAS CODE	DA	DESCRIPTION INGEROUS GOO		CLASS	UN	INDERS	VOLUME	PRICE U	/M AMOUNT
6 0	OXYK	OXYGEN	K 249 CFT		2.2	1072	<del> </del> 0	6.00	12.250cm	73.50
1	C25T	ARG 75%	/co2 25% 381	CF	2.2	1956		1.00	23.700c <b>Y</b> I	23.70
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QUANTITY ORDERED	STOCK	NO.	[	DESCRIP	TION		BACK	QUANTITY		
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	20				ázi izi					
	Pan			Thank ?	You!					
	111	1.								
DRIVER	SUB T	OTAL	HAZMAT CHARGES	TRANSP	PORT		S	ALES TAX	TOTAL	
	/.	270.55	6.00	9	.00	0.00		22.32	TOTAL)	307.87
CYLINDERS AF	RE RETURNED IN APPA DDITIONAL INSPECTION II	RENT GOOD OF NOUR PLANT.	RDER, BUT ARE GOODS R	ETURNED, UNLE G CHARGE.	SS DEFECTIVE OR N	OT ACCORDING TO	ORDER, WI	LL BE SUBJECT TO	MSDS DA	TA SHEETS AVAILABLE

SUBJECT TO ADDITIONAL INSPECTION IN OUR PLANT.

HANDLING CHARGE.

SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDEN

ALL SALES ARE SUBJECT TO THE TERMS AND CONDITIONS ON THE BACK
HEREOF WHICH BUYER ACKNOWLEDGES HAVING READ AND WHICH ARE
WHICH IS AN ANNUAL PERCENTAGE RATE OF 18%, WILL BE CHARGED ON ALL ACCOUNTS 30 DAYS
PART OF THIS SALE OR TO ALL TERMS AND CONDITIONS TO WHICH
PAST DATE OF NOTICE.

CALL CHEMTREC . DAY OR NIGHT 800-424-9300

ALL	GOOD	S REI	MIAN	THE	PROPE	RTY	OF	THE
88	ELLER	UNTIL	FINA	L PA	YMENT	18	MAD	E.

PRINT NAME

CUSTOMER'S SIGNATURE



Purchase	Order Request Form	P.O. Number:	375635				
		Date:	7-31-	<u> </u>			
Vendor:	Advanced Gos.						
Contact:	Akx		*** <del>**********************************</del>				
Phone:	7B-645-3443						
Item #	Description		Quantity	Cost			
	Oxigons		_6_				
	625 Gas		_				
	Acetylene ig						
	6' wire wheels.		5				
	(PA)						
				<u> 307.</u> 87			
Submitted By	: Dorge	MM	11	<del></del>			
Approved By	:	111	A				
	For Office Use On	ly /		ixablu			
Internal Exper	se: Job Expense	e:	70	(Xan			
CS FS	Wha	t Job?					
Trans SGA MRI		Give Vendor l	Re-Sale Certií	īcate			
DRM		Vendor to Cha	arge Sales Tax	:			

6200 SOUTH LOOP EAST HOUSTON, TEXAS 77087

TEL.: (713) 645-3443 FAX: (713) 645-6869



Please remit to: ADVANCED GAS & EQUIPMENT, INC 6200 South Loop East Houston, TX 77087

SOLD TO	¥				INVOL	CE.			1.4				SHIPPED TO
	CES 4904	ENVIRO GRIGO	OMENTAL SERVICES, GS ROAD TEXAS 77021	INC	INC AUG 0 8 2008						}		
TRUCK F	ROUTE	SEQUENCE	WAREHOUSE		CLERK				INVO	ICE No.		DELIVER	Y NOTE No.
				ζ.				715	520		26	330-0	
SALESRE	P C	USTOMER (	SALES TAX LICENSE No.		TERMS		ORDER DA		DELIVER	Y DATE		OICE DAT	
3				NET	30 DAYS	200	08 08	07	2008	08 07	2008	8 08 0	07 1
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CES001	L	37570	)4				2633	0-0			CPU		
QTY.ORD	GA:	S CODE	DESCRIPTION		CLASS	UN	CYLINI RET'D	DERS DEL'D	VOLUME	PF	RICE	U/M	AMOUNT
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					18120								
su	B-TOTAI	Ĺ	HAZMAT CHARGE	TRAN	NSPORT	SAL	ES TAX					TOTA	L
	36	5.75	0.00		0.00			3.03	3				39.78

ADMINISTRATION FEE

18% PER YEAR, CALCULATED MONTHLY AT THE RATE OF 1.5%, ON ALL OVERDUE ACCOUNTS



### Industrial Gases . Welding Supplies and Equipment

**ADVANCED GAS & EQUIPMENT** 

OFFICE COPY

Sales -Rental - Repair

6200 South Loop East • Houston, TX 77087 (713) 645-3443 • FAX (713) 645-6869 DELIVERY NOTE SOLD TO SHIPPED TO CES ENVIROMENTAL SERVICES, INC 4904 GRIGGS ROAD HOUSTON, TEXAS 77021 SAME AS "SOLD TO" (713) 676-1460 DELIVERY NOTE NO. TRUCK ROUTE SEQUENCE WAREHOUSE ENTERED BY 26330-0 alex STATE TAX LICENSE NO **TERMS** ORDER DATE DELIVERY DATE INVOICE DATE

REFERENCE NO 2008 08 07 26330 NET 30 DAYS CUSTOMER CODE CUSTOMER'S ORDER NO REQUISITION NO BILL OF LADING NO. SHIPPED VIA **CES001** 375704 26330-0 CPU QUANTITY ORDERED CYLINDERS **DESCRIPTION** CLASS **GAS CODE** UN VOLUME PRICE U/M **AMOUNT DANGEROUS GOODS** 2.1 1001 1 100.000CYL ACETWIL ACETYLENE WIL 390 CFT 0.00 0.00 ACETYLENE WSL 130 CFT 2.1 1001 1.00 36.750CYL 36.75 1 ACETWSL STOCK NO. **DESCRIPTION** BACK Thank You!

CYLINDERS ARE RETURNED IN APPARENT GOOD ORDER, BUT ARE SUBJECT TO ADDITIONAL INSPECTION IN OUR PLANT. ALL SALES ARE SUBJECT TO THE TERMS AND CONDITIONS ON THE BACK HEREOF WHICH BUYER ACKNOWLEDGES HAVING READ AND WHICH ARE PART OF THIS SALE OR TO ALL TERMS AND CONDITIONS TO WHICH PARTIES HAVE AGREED IN A WRITTEN CONTRACT.

SUB TOTAL

36.75

DRIVER

GOODS RETURNED, UNLESS DEFECTIVE OR NOT ACCORDING TO ORDER, WILL BE SUBJECT TO A HANDLING CHARGE.

0.00

SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT **CALL CHEMTREC • DAY OR NIGHT** 800-424-9300

MSDS DATA SHEETS AVAILABLE

39.78

TERMS: ALL BILLS DUE AND PAYABLE NET 30 DAYS. A FINANCE CHARGE OF 1.5% PER MONTH WHICH IS AN ANNUAL PERCENTAGE RATE OF 18%, WILL BE CHARGED ON ALL ACCOUNTS 30 DAYS PAST DATE OF NOTICE.

PRINT NAME

CUSTOMER'S SIGNATURE

SALES TAX

3.03

ALL GOODS REMAIN THE PROPERTY OF THE SELLER UNTIL FINAL PAYMENT IS MADE.

RED'D BY:

TRANSPORT

0.00

HAZMAT CHARGES

0.00

EPAHO055000064

TOTAL

Purchase (	Order Request Form	P.O. Number: Date:	375704
Vendor:	Advance GAS		
Contact:			
Phone:	Steve S.		
Item #	Description A Manager Company		Quantity Cost
	Acetylene Bottle		100.00 Tax +8.25 = 108.25
			= 108.75
		· · · · · · · · · · · · · · · · · · ·	
Submitted By	: Steve S.		_
Approved By	:		_
	For Office Use Or	ıly	
Internal Exper	nse: Job Expens	se:	
CS FS	Wh	at Job?	
Trans SGA MRI	~	_ Give Vendo	r Re-Sale Certificate
DRM DSP		_ Vendor to C	harge Sales Tax

6200 SOUTH LOOP EAST HOUSTON, TEXAS 77087

TEL.: (713) 645-3443 FAX: (713) 645-6869



Please remit to: ADVANCED GAS & EQUIPMENT, INC 6200 South Loop East Houston, TX 77087

SOLD	ro					INVO	ICE.										SHIPPED TO	
			MENTAL S S ROAD	SERVICES,	INC													
ļ	HOU	STON, I	EXAS 7	7021														
		T																
TRUCK	ROUTE	SEQUENCE	WAR	ehous <b>e</b>		CLER	K.	1111			IN	VOICE	No.	D)	ELIVEF	RY NO	TE No.	
					ale	ex			71455 DER DATE DELIVERY DATE						26220-0			
SALESI	EP.	CUSTOMER S	SALES TAX LI	CENSE No.	ENSE NO. TERMS								DATE D		ICE DA		PAGE	
3		NET 30 DAYS 2						2008	08	04	2008	08	04	2008	08	04	1	
CUSTON	TOMER CODE CUSTOMER ORDER NO. REQUISITION NO. BILL OF LADING NO.					SHIP	PED VI	Α										
CES0	1 JORGE TO CALL 26220-0 CPU																	
QTY ORDERED STOCK NO. DESCRIPTION						IPTION			B/ORI	OR.	QTY DE	G.	PRI	CE	U/M		AMOUNT	
2.00 STA WELDCAP WELDERS 2.00 TIL 850L GLOVE EL 2.00 TIL 850M GLOVE EL 1.00 SMI SC120 ACET CUT 1.00 SMI SC121 ACET CUT					K G( K G( TIN( TIN( R K] MIG-	OLD MED 3 TIP 3 TIP IT MILLER					2.0 2.0 2.0 1.0 1.0	0 0 0 0	21 . 18 . 17 . 17 .	.7700 .8200 .4600 .0400 .9200 .7700	PR PR EA EA EA		13.54 43.64 36.92 17.04 17.92 34.77 142.82	
Ş	SUB-TOTA	ΑL	HAZMAT	CHARGE	TR	ANSPORT		SALES	TAX					1	CTA	L		
306.65 0.0						0.00 25.31 331						331.96						

ADMINISTRATION FEE

18% PER YEAR, CALCULATED MONTHLY AT THE RATE OF 1.5%, ON ALL OVERDUE ACCOUNTS



SOLD TO

### Industrial Gases · Welding Supplies and Equipment

# ADVANCED GAS & EQUIPMENT

OFFICE	COPY
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Sales - Rental - Repair

DELIVERY NOTE

SHIPPED TO

6200 South Loop East • Houston, TX 77087 (713) 645-3443 • FAX (713) 645-6869

CES ENVIROMENTAL SERVICES, INC

4904 GRIGGS ROAD

	Н	OUSTON, T	EXAS 7	77021 76–1460						SAI	VIE AS	"SOL	р то	<sub>\$</sub> 35	
TRUCK	ROUTE	SEQUENCE		VAREHOUSE	ENT alex	ERED BY				104.			astan at resear	ery note 5220-0	t no.
26220	o.	STAT	E TAX LICENS	E NO.	NET 3	TERI 30 DAYS	MS		<b>ORI</b> 2008	DER DATE	DRLIVE	84	III IM	VOICE DATE	<b>PA</b> 1.
CES001		JORGE TO	* *	S ORDER NO.		REQU	ISITION NO.		protection to	BILL OF LADING		CPU	J SH	IPPED VIA	
QUANTITY ORDERED	GAS C	CODE		ESCRIPTIO SEROUS GO		CLAS	S UN		DITWIRD	VOLUME	PRI	CE	J/M	AMOU	JNT
2.00 2.00 1.00 1.00 1.00	STA TIL TIL SMI SMI BIN	850M SC120 SC121 CKM A215T3545	GLOVE GLOVE ACET ACET CONNE ALPHA 035-0		D MED TIP TIP ' MILLER OUN 15'	You!			BACK ORDER	QUANTITY DELIVERED	6. 21. 18. 17. 17. 34.	.770EA 820PR .460PR .040EA .920EA .770EA 820EA		43 36 17 17 34	3.54 3.64 6.92 7.04 7.92 4.77 2.82
DRIVER	: BETTIBUE	SUB TOTAL 306.	.65	O.00		.00		00		25.31	1/01/		ATA SUE	331	1.96

ALL GOODS REMAIN THE PROPERTY OF THE SELLER UNTIL FINAL PAYMENT IS MADE.

CYLINDERS ARE RETURNED IN APPARENT GOOD ORDER, BUT ARE GOODS RETURNED, UNLESS DEFECTIVE OR NOT ACCORDING TO ORDER, WILL BE SUBJECT TO A SUBJECT TO ADDITIONAL INSPECTION IN OUR PLANT.

GOODS RETURNED, UNLESS DEFECTIVE OR NOT ACCORDING TO ORDER, WILL BE SUBJECT TO A HANDLING CHARGE.

ALL SALES ARE SUBJECT TO THE TERMS AND CONDITIONS ON THE BACK
HEREOF WHICH BUYER ACKNOWLEDGES HAVING READ AND WHICH ARE
PART OF THIS SALE OR TO ALL TERMS AND CONDITIONS TO WHICH
PART HAVE AGREED IN A WRITTEN CONTRACT.

PARTIES HAVE AGREED IN A WRITTEN CONTRACT.

PARTIES HAVE AGREED IN A WRITTEN CONTRACT.

SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT
CALL CHEMTREC • DAY OR NIGHT
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PRINT NAME

RED'D BY:

CUSTOMER'S SIGNATURE

EPAHO055000067

Purchase	Order Request Form	P.O. Number:	0/06	87
		Date:	8-4-0	8
Vendor:	Advanced Gas.			
Contact:	Tony			
Phone:	713-645-3443			
Item #	Description		Quantity	Cost
	Glores Lg.			galaga da garan da garan da garan da garan da garan da garan da garan da garan da garan da garan da garan da g
	Gloves Med		_2_	
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	Connector Kit milter.			AND THE PERSON NAMED IN COLUMN NAMED IN
	P.A		<u> </u>	
				73. 04
Submitted By	= Jorge		•	331.96
Approved By	$\Lambda \Lambda \Lambda \Lambda$		A	
	For Office Use Only	10		anna yanna da ana d
Internal Expen	se: Job Expense:			
FS	What Jo	ob?		······································
Trans SGA	· · · · · · · · · · · · · · · · · · ·	Give Vendor I	Re-Sale Certifi	cate
MRI DRM		Vendor to Cha	arge Sales Tax	

6200 SOUTH LOOP EAST HOUSTON, TEXAS 77087

TEL.: (713) 645-3443 FAX: (713) 645-6869

SUB-TOTAL

417.64



Please remit to: ADVANCED GAS & EQUIPMENT, INC 6200 South Loop East Houston, TX 77087

**ADVANCED**GAS envolece SOLD TO SHIPPED TO CES ENVIROMENTAL SERVICES, AUG 0 9 2008 4904 GRIGGS ROAD HOUSTON, TEXAS 77021 ROUTE TRUCK SECTIENCE WAREHOUSE CLERK TNVOTCE NO DELIVERY NOTE NO alex 71544 26285 - 0ORDER DATE DELIVERY DATE INVOICE DATE TERMS SALESREP CUSTOMER SALES TAX LICENSE No. PAGE M 3 NET 30 DAYS 2008 08 06 2008 08 07 2008 80 07 1 CUSTOMER CODE CUSTOMER ORDER NO. REQUISITION NO. BILL OF LADING NO. SHIPPED VIA CES001 375693 26285-0 CPU QTY ORDERED STOCK NO. B/ORDR QTY DEL PRICE U/M TRUOMA BES 14GRN 1/4" HOSE SINGLE GRN 0.5400FT 27.00 50.00 50.00 2.00 WES AW17 NIPPLE, INERT ARC FIT 2.00 2.0600EA 4.12 2.00 WES AW14A NUT, INERT ARC FITTNG 2.00 1.3100EA 2.62 0.3800EA 2.00 WES 626 FERRULE, BRASS 2.00 0.76 1.00 1.00 73.90 AGE 57Y03R POWER CABLE 25'RUBBER 73.9000EA 6.00 STA 14602 1/2X.020X44-7/8 18T 6.00 5.4200EA 32.52 BAND SAW BLADE 2.00 SMI H2051A580 FLOWMTR 3 SCALE 0-50 2.00 62.5600EA 125.12 SCFH 10.00 BES 2%7332GRND 2% 3/32 X 7" TUNGSTEN 10.00 4.4300EA 44.30 10.00 BES 2%718GRND 2% 1/8 X 7" TUNGSTEN 10.00 7.0100EA 70.10 2.00 SMI HB190 HARD HAT ASSEMBLY 2.00 18.6000EA 37.20

ADMINISTRATION FEE

SALES TAX

34.45

16% PER YEAR, CALCULATED MONTHLY AT THE RATE OF 1.5%, ON ALL OVERDUE ACCOUNTS

MATERIAL SAPETY DATA SHEETS AVAILABLE IN A TRANSPORT EMERGENCY, CONTACT 1-800-424-9300

TRANSPORT

0.00

HAZMAT CHARGE

0.00

TOTAL

452.09



#### Industrial Gases · Welding Supplies and Equipment

ADVANCED GAS & EQUIPMENT.

6200 South Loop East • Houston, TX 77087 (713) 645-3443 • FAX (713) 645-6869

OFFICE COPY

Sales - Rental - Repair

DELIVERY NOTE

SOLD TO

SHIPPED TO

CES ENVIROMENTAL SERVICES, INC 4904 GRIGGS ROAD HOUSTON, TEXAS 77021 (713) 676-1460

SAME AS "SOLD TO"

TRUCK	ROUTE SEQUENCE	WAREHOUSE	ENTERED BY		The N	olocito, <b>D</b>	ELIVERY NOTE NO.
		WAILINGOOL	alex			i. = 0	26285-0
			. ]	· · · · · · · · · · · · · · · · · · ·	FORWARD IN S. NO.	Enter-Inter-Control	
REFERENCE N	o. <b>St</b>	ATE TAX LICENSE NO.	TERM	8	ORDER DATE	DELIVERY DATE	INVOICE DATE PAG
26285			NET 30 DAYS		2008 b8 b6	200 88 900	
CUSTOMER	CODE	CUSTOMER'S ORDER NO.	REQUIS	ITION NO.	BILL OF LADIN	NG NO.	SHIPPED VIA
CES001	<b>∞</b> 3	75693			26285-0	CPU	
QUANTITY ORDERED	GAS CODE	DESCRIPTION DANGEROUS GOO	DS CLASS	UN CYLIN	DERS VOLUME	E PRICE U/I	M AMOUNT
		JANGENOOS GOO		KHUMUV	IN COVERED	f. '	
·			<b>k</b>				
				1000			
					NOTE THE REPORT OF THE PARTY OF	i	
		The state of the s			entrationer alternational at a construction of the state accept		W. (1)
						<u> </u>	
QUANTITY ORDERED	STOCK NO.		ESCRIPTION		BACK QUANTIT ORDER DELIVERE		
	BES 14GRN	1/4" HOSE SINGL		بسر	50	0.540FT	
	WES AW17 WES AW14A	NIPPLE, INERT A			2	2.060EA	
	WES 626	NUT, INERT ARC FERRULE, BRASS	FITTING		2	1.310EA 0.380EA	the state of the s
	AGE 57Y03R	POWER CABLE 25'	RITERER		2	73.900EA	PM
	STA 14602	1/2x.020x44-7/8				5.420EA	
		BAND SAW BLADE			6		
2.00	SMI H2051A58		0-50		2	62.560EA	
		SCFH					
	BES 2%7332GF				10	4.430EA	
and the second second	BES 2%718GRN				10	7.010EA	
2.00	SMI HB190	HARD HAT ASSEMB	dank You!		2	18.600EA	
						Part   Part	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
DRIVER	SUB TOTA	L HAZMAT CHARGES	TRANSPORT		SALES TAX		
						TOTAL	152.09
CYLINDERS ARE	RETURNED IN APPARENT	GOOD ORDER, BUT ARE GOODS RET	URNED, UNLESS DEFECTIVE OR	NOT ACCORDING TO O	RDER, WILL BE SUBJECT T	O A MSDS DAT	A SHEETS AVAILABLE

SUBJECT TO ADDITIONAL INSPECTION IN OUR PLANT.

HANDLING CHARGE.

ALL SALES ARE SUBJECT TO THE TERMS AND CONDITIONS ON THE BACK HEREOF WHICH BUYER ACKNOWLEDGES HAVING READ AND WHICH ARE PART OF THIS SALE OR TO ALL TERMS AND CONDITIONS TO WHICH PARTIES HAVE AGREED IN A WRITTEN CONTRACT.

TERMS: ALL BILLS DUE AND PAYABLE NET 30 DAYS. A FINANCE CHARGE OF 1.5% PER MONTH WHICH IS AN ANNUAL PERCENTAGE RATE OF 18%, WILL BE CHARGED ON ALL ACCOUNTS 30 DAYS PAST DATE OF NOTICE.

SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT CALL CHEMTREC . DAY OR NIGHT 800-424-9300

ALL GOODS REMAIN THE PROPERTY OF THE SELLER UNTIL FINAL PAYMENT IS MADE.

PRINT NAME

RED'D BY:

CUSTOMER'S SIGNATURE

EPAHO055000070

Purchase	Order Request Forn		P.O. Number: Date:	<u>315</u> 8-6-0	8
Vendor:	tovanced Gas	3			
Contact:	tlex		····		
Phone:	713-645-344	3			
Item #	Description			Quantity	Cost
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Submitted By	v: Jose			_	
Approved By	: Don't for	<u> </u>		_	
	For	Office Use Only			<del></del>
Internal Expe	nse:	Job Expense:			
CS FS		What J	lob?		
Trans SGA	Repairs			Re-Sale Cert	
MRI DRM DSP				harge Sales To	

6200 SOUTH LOOP EAST

HOUSTON, TEXAS 77087

AUG 0 2 2008

TEL.: (713) 645-3443 FAX: (713) 645-6869



Please remit to: ADVANCED GAS & EQUIPMENT, INC 6200 South Loop East Houston, TX 77087

**ADVANCED**GAS

INVOICE SHIPPED TO SOLD TO INC DUCO INC CES ENVIROMENTAL SERVICES, 4904 GRIGGS ROAD 16661 JACINTO PORT BLVD HOUSTON, TEXAS 77021 HOUSTON TX 77015 ATTN: BILL MARTIN 281-249-2842 INVOICE No. TRUCK ROUTE SEQUENCE WAREHOUSE CLERK DELIVERY NOTE No. alex 71029 25935-0 ORDER DATE DELIVERY DATE SALESREP CUSTOMER SALES TAX LICENSE No. TERMS PAGE 3 NET 30 DAYS 2008 | 07 | 28 | 2008 | 07 30 2008 07 30 1 CUSTOMER CODE CUSTOMER ORDER NO. REQUISITION NO. BILL OF LADING NO. SHIPPED VIA O/T CES001 375583 25935-0 CYLINDERS OTY ORD GAS CODE DESCRIPTION CLASS IIN VOLUME PRICE U/M AMOUNT RETID DEL'D 8 OXYK OXYGEN K 249 CFT 1072 0 8 8.00 12.2500CYL 98.00 2.2 2 ACETYLENE WTL 390 CFT 2.1 1001 0 2.00 100.0000CYL 200.00 ACETWTL 2 AM DELIVERY PLEASE LETS-CETS MRI TOTAL HAZMAT CHARGE TRANSPORT SUB-TOTAL SALES TAX 298.00 6.00 9.00 24.59 337.59

ADMINISTRATION FEE

18% PER YEAR, CALCULATED MONTHLY AT THE RATE OF 1.5%, ON ALL OVERDUE ACCOUNTS



#### Industrial Gases . Welding Supplies

CES ENVIROMENTAL SERVICES, INC

ADVANCED GAS & EQUIPME

6200 South Loop East . Houston, Th

;nt

DUCO INC

OFFICE COPY

Sales - Rental - Repair

(713) 645-3443 • FAX (713) 645-పెరంలు DELIVERY NOTE **Advanced**Gas SOLD TO SHIPPED TO

16661 JACINTO PORT BLVD 4904 GRIGGS ROAD HOUSTON TX 75010 E AS "SOLD TO" HOUSTON, TEXAS 77021 ATTN: BILL MARTIN (713) 676-1460 **281-24**9-2842 WAREHOUSE **ENTERED BY** DELIVERY NOTE NO. TRUCK ROUTE SEQUENCE 25935 - 0alex REFERENCE NO. STATE TAX LICENSE NO. **TERMS** ORDER DATE **DELIVERY DATE** INVOICE DATE 25935 NET 30 DAYS **200**8 07 28 1 20 CUSTOMER CODE CUSTOMER'S ORDER NO REQUISITION NO. BILL OF LADING NO SHIPPED VIA **CES001** 3**7**5583 25935-0 O/TQUANTITY ORDERED CYLINDERS **DESCRIPTION GAS CODE** CLASS UN VOLUME PRICE U/M AMOUNT **DANGEROUS GOODS** 

Е .072 2.2 OXYGEN K 249 CFT 12.250dYL 8 OXYK 2 ACETYLENE WIL 390 CFT 2.1 .001 100.000 YL ACETWIL AM DELIVERY PLEASE QUANTITY
ORDERED DESCRIPTION STOCK NO. Thank You! BRIVER SUB TOTAL HAZMAT CHARGES TRANSPORT SALES TAX WOWAL

CYLINDERS ARE RETURNED IN APPARENT GOOD ORDER, BUT ARE SUBJECT TO ADDITIONAL INSPECTION IN OUR PLANT.

GOODS RETURNED, UNLESS DEFECTIVE OR NOT ACCORDING TO ORDER, WILL BE SUBJECT TO A HANDLING CHARGE

MSDS DATA SHEETS AVAILABLE

ALL SALES ARE SUBJECT TO THE TERMS AND CONDITIONS ON THE BACK HEREOF WHICH BUYER ACKNOWLEDGES HAVING READ AND WHICH ARE PART OF THIS SALE OR TO ALL TERMS AND CONDITIONS TO WHICH PARTIES HAVE AGREED IN A WRITTEN CONTRACT.

TERMS: ALL BILLS DUE AND PAYABLE NET 30 DAYS. A FINANCE CHARGE OF 1.5% PER-MONTH WHICH IS AN ANNUAL PERCENTAGE RATE OF 18%, WILL BE CHARGED ON ALL ACCOUNTY 30 DAYS

SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT OALL CHEMTREC • DAY OR NIGHT

OALL CHEMTREC • DAY OR NIGHT PAST DATE OF NOTICE.

800-424-9300

ALL GOODS REMAIN THE PROPERTY OF THE SELLER UNTIL FINAL PAYMENT IS MADE.

PRINT, NAME RED'D BY:

CUSTOMER'S SIGNATURE



## Industrial Gases • Welding Supplies and Equipment

**CUSTOMER'S COPY** 

ADVANCED GAS & EQUIPMENT
6200 South Loop East • Houston, TX 77087

Sales - Rental - Repair

A	DVANCED	Gas		(713) 64	5-3443 • F	AX (713)	645-68	69	,		DELIVERY	NOTE	algunians and an americans a final section
SOLD T	0					· · · · · · · · · · · · · · · · · · ·	<del>,</del>	SHIP	PED TQ				
	46	904 GRI	GGS ROA TEXAS		INC			166 HOU ATT	JSTON	ACINTO TX 7 <b>50</b> ILL MAR	PORT BLV <b>YY</b> E AS " TIN		o"
TRUCK	ROUTE	SEQUENCE		WAREHOUSE	ENTERE alex	D BY				्रेह्न भार	olog liky	and the state of the	<b>very note no</b> 25935–0
<b>AEFERENCI</b> 25935	######################################	S	TATE TAX LICE	ENSE NO.	NET 30	TERMS DAYS	\$ ,		Mariana cha cha cha ch	07 28	DELIVERY 2007	Prikariki	INVOICE DATE
CES001	ER CODE	3 <b>7</b> 5583	сиѕтом	ER'S ORDER NO.		REQUIS	ITION NO.		E-CSPe-	BILL OF LADIR		O/T	SHIPPED VIA
QUANTITY ORDERED	GAS C	ODE		DESCRIPTION NGEROUS GOO	DS	CLASS	UN	CYLIN RETURNED	DERS	VOLUM	E PRIC	E U/M	AMOUNT
8	OXYK	c	XYGEN K	249 CFT		2.2	1072	D	7		12.2	500 <b>YL</b>	
2	ACETWI	ر A	CETYLEN	E WIL 390 CE	<b>T</b> :	2.1	1001	p	2		100.0	000 <b>0XI</b>	
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DRIVE	H	SUB TOT	ral 1	HAZMAT CHARGES	TRANSPORT				SA	ALES TAX	TOTA		
SUBJECT TO ALL SALES A HEREOF WH PART OF TH	ADDITIONAL IN: ARE SUBJECT TO ICH RUYER ACK	SPECTION IN O THE TERMS A Nowledges H O All Terms	OUR PLANT. IND CONDITIONS IAVING READ AN AND CONDITION	ER, BUT ARE GOODS RE HANDLING ON THE BACK TERMS: AL D WHICH ARE WHICH IS A NS TO WHICH PAST DATE	CHARGE. L BILLS DUE AND I In annual Percen Of Notice.	PAYABLE NET	30 DAYS, A I 18%, WILL B	FINANCE	CHARGE OF	F 1.5% PER MO ACCOUNTS/30 D	SPILL, LE	AK, FIRE, EXPO L CHEMTREC 800-424	HEETS AVAILABLE OSURE, OR ACCIDEN • <b>DAY OR NIGHT</b> -9300

Purchase (	Order Request Form	P.O. Number:	37558	33
	•	Date:	7-28-	08_
Vendor:	Advance Gois.			
Contact:	Alex			
Phone:	713-645-3443.			
Item #	Description		Quantity	Cost
	<del>Actylene</del>		Z	
	Acetylene Oxigen			
-				
	Job # 6899	7		and the second s
	Duco			
				<u>337</u> 59.
Submitted By	: Joige	7		
Approved By:	MM	<u>(</u>	Joban	NATERALS
	For Office Us	se Only	<u></u>	Propherical Action Conference Application Conference Co
Internal Expen	se: Job Ex	kpense:	IRI	
FS Trans		What Job?		
SGA MRI		Give Vendor l	Re-Sale Certi	ficate
DRM DEB		Vendor to Cha	arge Sales Ta	X





5216 North McCarty Drive · Houston, Texas 77013 Tel (713) 673-1444 Fax (713) 673-6743 Parts Dept. (713) 673-3407 www.vanguardtrucks.com

DISCLAIMER OF WARRANTIES: Any warranties on the product sold hereby are those made by the manufacturer. The seller, VANGUARD TRUCK CENTER OF HOUSTON hereby & warranties, either express or implied, including any implied warranty of or fitness for a particular purpose, and the seller, VANGUARD TRUCK CENTER OF HOUSTON neither assuranties, either person to assume for it any liability in connection with the sales of said products.

NOTICE: ALL CLAIMS AND RETURNED MERCHANDISE MUST BE ACCOMPANIED BY THIS BILL. NO REFUND AFTER 30 DAYS. NO REFUND ON ELECTRICAL PARTS. PARTS RETURNED THE FAIL ALL CLAIMS AND RETURNED MERCHANDISE MUST BE ACCOMPANIED BY THIS BILL. NO REFUND AFTER 30 DAYS. NO REFUND ON ELECTRICAL PARTS. PARTS RETURNED THE FAIL ALL APPLICABLE REQUIREMENTS OF SECTION 6, 7, AND 12 OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED, AND OF REGULATIONS AND ORDERS OF THE ADMINISTRATOR OF WAGE AND HOURS DIVISION ISSUED UNDER SECTION 14 THEREOF, TERMS: STRICTLY CASH UNLESS ARRANGEMENTS MADE. OPEN ACCOUNT TERMS: NET 10%TH PROX. A DEPOSIT OF 20% REQUIRED ON SPECIAL ORDER PARTS.

NO REFLIEND ON SPECIAL ORDER PARTS.

DATE ENTERED	YOUR ORDER NO.	DATE SHIPPED	INVOICE DATE	INVOICE		
30 JUL 08	VISA	30 JUL 08	30 JUL 08	NUMBER	493936	
e		Control of the Control	_			
ŏ	ACCOUNT NO	. 90	S H		PAGE 1 OF 1	

SHIP VIA	SLSM. B/L NO	•	TERMS		F.0	B. POINT	. 1	
W//C	MG			I TAXABLE		HOUSTON T		
OUANTITY ORD SHIP	PART NO.	D	ESCRIPTION	LISI	NET	AMOUN	220000000000000	
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	TRUCK CENTER O	F HOUSTON		ARTS		718	.84	
	UR CLEARANCE I	TEMS	the state of the s	UBLET				
	NGE DAILY			REIGHT ALES TAX	·		.00 .30	
ww.vangu	ardtrucks.com	S SIGNATURE		ALLO IAX	*	1 33	.30	
	X			TOTA	L	\$778	.14	

TERMS: Due and payable on receipt of invoice subject to late charge at the highest rate permitted by law, but not to exceed two (2%) per month if unpaid by the last day of the month following the statement date. The late charge is not intended as an alternative to payment when due. ALL RETURNED PARTS ARE SUBJECT TO A RESTOCKING CHARGE. PARTS MUST BE RETURNED ALONG WITH INVOICE WITHIN 30 DAYS OR CREDIT WILL NOT BE GRANTED.

x1pi1.100\_1 Copyright 2000 ADP, Inc. PARTS INVOICE 1-UP XP13C1

CUSTOMER COPY

Order	Request Form	P.O. Number:	10101	
•		Date: 8-11-C	08	
Vendor:	Northern Tool	· Equipmer	<del>3+</del> ,	0
Contact:			100	
Phone:	713 6432342	$\longrightarrow$	100	
Item #	Description		Quantity	Cost \$
1	Stock Replace	ment	_1	94.58
	Chopson Blad	es		
	2" Surface Prep	. Pads		
-	3" Surface Pres	o. Pads		
	3" Cutoff whe	<u>es</u>		
				4
	Stock			
	Credit Co	wd		
	<u> </u>	<u>~~~~</u>		
	Turchas	e.e		
	Harden .		•	
Submitted	By:			
Approved	By: Last			
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	Office Us	e Only		
Internal E	Expense: Job Expense:			
Chrone CS	What Job?	· 李		
FS Tran	lS 😨			
SGA MRI	□Giye	e Vendor Re-Sale Cert dor to Charge Sales		
DRI				
Te			· <del>-</del>	

Northern Tool & Equipment Co. 7994 Bellfort Street Houston, TX 77061 (713)643-2342

(713)643-2342	
STORE: 00660 REGISTER: 002 CASHIER: JACKY ASSOCIATE: 00000000099	1
CUSTOMER RECEIPT COPY	
3X1/8X1/4 C/0 WHEELS 10P 1599691 1 @ 12.99	12.99
3X1/8X3/8 C/O WHEELS 10P 1599692 1 @ 10.99	10,99
3 MAROON SURFACE PREP D 1599764 1 @ 6.49	6.49
2 MAROON SURFACE PREP D 1599761 1 @ 4.99	4.99
2 MAROON SURFACE PREP D 1599761 1 @ 4.99	4.99
3 BROWN SURFACE PREP DI 1599763 1 @ 6.49	6.49
3X035X3/8 C/O WHEELS 10P 1599687 1 @ 6.99	6.99
3X035X3/8 C/O WHEELS 10P 1599687 1 @ 6.99	6.99
METAL REINFORCED CHOPSAW 159936 1 @ 5.29	5.29
METAL REINFORCED CHOPSAW 159936 1 @ 5.29	5.29
METAL REINFORCED CHOPSAW 159936 1 @ 5.29	5.29
METAL REINFORCED CHOPSAW 159936 1 @ 5.29	5.29
METAL REINFORCED CHOPSAW 159936 1 @ 5.29	5.29
144	87.37 7.21 94.58
AMOUNT TENDERED VISA ACCT: *********4637 EXP: ****** APPROVAL: 055062	94.58
TOTAL PAYMENT	94.58
SALES TAX ANALYSIS CODE RATE% TAXABLE LOCAL 8.25000 87.37	TAX 7.21
Transaction: 22554 8/11/2008 8	8:48 AM
DUE TO THE CURRENT EMERGENCY WEATHER CONDITIONS, ALL GENERA AND POWER EQUIPMENT SALES ARE I ALL PRODUCT / SERVICE CLAIMS W HONORED AND PROCESSED ACCORDING TO MFG WARRANTY.	FINAL. ILL BE

Thank you for shopping at Northern.

Total catalog and on-line selection available thru Northern Tool

Total Warehouse Access Program.

Ask Associate for details.

Northern Tool & Equipment Co., 7994 Bellfort Street Houston, TX 77061 (713)643-2342

STORE: 00660 REGISTER: 002
CASHIER: JACKY
ASSOCIATE: 00000000099
CUSTOMER RECEIPT COPY

10 PC 1/4 MCCOUPLER 10.99
155221 1 @ 10.99

10 PC 1/4 MALE COUPLER 10.99 155221 1 @ 10.99

10 PC 1/4 MALE COUPLER 10.99 .155221 1 @ 10.99

TORCH SAWZALL BLADE 15.99 M0531 1 @ 15.99

24T 6L SAWZALL BLADE 10.49 M0361 1 @ 10.49

14F 9L SAWZALL 14.99 M0353 1 @ 14.99

 SUBTOTAL
 74.44

 SALES TAX
 6.14

 TOTAL
 80.58

AMOUNT TENDERED
VISA 80.58

VISA ACCT: \*\*\*\*\*\*\*\*\*\*4637 EXP: \*\*\*\*\*\*

APPROVAL: 095293

\_\_\_\_\_

TOTAL PAYMENT 80.58

SALES TAX ANALYSIS

CODE RATE% TAXABLE TAX

LOCAL 8.25000 74.44 6.14

Transaction: 20682 7/25/2008 12:02 PM

DUE TO THE CURRENT EMERGENCY
WEATHER CONDITIONS, ALL GENERATOR
AND POWER EQUIPMENT SALES ARE FINAL.
ALL PRODUCT / SERVICE CLAIMS WILL BE
HONORED AND PROCESSED ACCORDING
TO MFG WARRANTY.

Thank you for shopping at Northern.

Total catalog and on-line selection available thru Northern Tool Total Warehouse Access Program. Ask Associate for details.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Visit us at NorthernTool.com



Order	Request Form		P.O. Number:	375573	
			Date: 7-28	80-	
Vendor:	Morthern T	001 * E	quipmen		
Phone:	71364323	,42			<u> </u>
Item #	<u>Descriptio</u>	<u>n</u>		Quantity	Cost S
	Stock Sanzall Coupler:	blades	ement		<u>60.58</u>
	Cred	;+ (	lard		
	Ywd	nase			
Submitted	IRV:	} []			
Approved		,			
		Office Us	e Only		
Internal E Consac CS FS Train	rs <u>=</u>	Job Expense: What Job?			
SGA	17		e Vendor Re-Sal dor to Charge S		Alamania (Maria)



#### Bank of America Commercial Card Company Statement

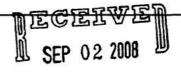
CES Environmental

Company Account Number:

Statement Date Credit Limit Cash Limit

08-27-08 Payment Due Date \$750,000 Days in Billing Cycle \$150,000 Total Payment Due 09-16-08 31

\$363,376.19



BY: -----

Page 2 of 10

	Credits	Cash	Purchases and Other Debits	Total Activity
MATTHEW L BOWMAN				
(b) (6)				Ì
Credit Limit \$500,000	\$0.00	\$0.00	\$27,308.11	\$27,308.11
STEVE K STRICKER				
(b) (6)				ĺ
Credit Limit \$35,000	\$62.35	\$0.00	\$34,808.24	\$34,745.89
LOREN L THOMAS				
(b) (6)				}
Credit Limit \$15,000	\$73.80	\$0.00	\$10,909.74	\$10,835.94
RYAN C THOMAS		•		100
(b) (6)				
Credit Limit \$15,000	\$0.00	\$0.00	\$9,735.29	\$9,735.29
BRIAN D WEATHERS				
(b) (6)				
Credit Limit \$25,000	\$0.00	\$0.00	\$27,127.79	\$27,127.79
GREG BOWMAN		7,000		
(b) (6)				r:
Credit Limit \$500,000	\$23,353.17	\$0.00	\$250,725.89	\$227,372.7
CLINT HOPKINS				
(b) (6)				
Credit Limit \$10,000	\$0.00	\$0.00	\$4,257.79	\$4,257.79
MARLIN MOSER				
(6) (6)				Ė
Credit Limit \$15,000	\$25.96	\$0.00	\$10,393.24	\$10,367.28
SCOTT SHIMMER				
(b) (6)				
Credit Limit \$10,000	\$0.00	\$0.00	\$6,601.95	\$6,601.95
RICK TULLOS				
(b) (6)				
Credit Limit \$5,000	\$20.73 J	\$0.00	\$5,019.16	\$4,998.43

			COMPANY DETAIL	
Post Date	Tran Date	Reference Number	Transactions	Charge Credit
08-14 08-27	08-14 08-27		AUTO PAYMENT DEDUCTION 806 MONTHLY REPORTING FEE	228,632.17PY 25.00
			Total Company Charges and Credits	\$25.00 \$228,632.17





#### Bank of America Commercial Card Company Statement

 Statement Date
 08-27-08
 Payment Due Date
 09-16-08

 Credit Limit
 \$750,000
 Days in Billing Cycle
 31

 Cash Limit
 \$150,000
 Total Payment Due
 \$363,376.19

CES Environmental

Company Account Number:

Page 3 of 10

		****	CARDHOLDER ACTIV	TTY			
	en iben i	110	PURCHASING ACTIV	ITY	-		2514 SG C V SC C
Post Date	Tran Date	Ref. No.	Transactions	мсс	Acct #	Charge	Credit
07-28	07-25	24692	TMP*MONSTER.COM 800-MONSTER MA	7399	3173	385.00	
07-28	07-24	24254	IGNITE 214-8004400 TX	8299	3173	19.95	
07-28	07-24	24254	IGNITE 214-8004400 TX	8299	3173	19.95	
07-28	07-25	24492	CAREERBUILDER COM 773-5273600 IL	7399	3173	419.00	
07-28 07-28	07-26 07-26	24692 24692	TCD*THOMSON LEARNING 800-354-9706 KY TMP*MONSTER.COM 800-MONSTER MA	8299 7399	3173 3173	2,816.15 750.00	
07-28	07-27	24492	CAREERBUILDER COM 773-5273600 IL	7399	3173	419.00	
07-28	07-27	24492	CAREERBUILDER COM 773-5273600 IL	7399	3173	419.00	
07-30	07-29	24692	DMI* DELL SM BUS 800-456-3355 TX	5045	3173	2,711.69	
07-30	07-25	24245	FRIENDFNDWD +16107571929	5967	3173	5.90	
08-04	07-31	24445	OFFICE DEPOT #2662 PASADENA TX	5943	3173	75.76	
08-04	07-31	24270	HCTRA REBILL 281-8753279 TX	9399	3173	560.00	
08-04	08-01	24445	POLYSPEC LLC 281-397-0033 TX	5039	3173	13,856.50	
08-04	07-31	24455	WAL-MART #0752 PASADENA TX	5411	3173	327.64	
08-04	07-31	24455	WAL-MART #3425 HOUSTON (ALMETX	5411	3173	539.09	
08-06 08-06	08-05	24717 24717	AMERICAN SAFETY TRAINING 563-3265837 IA	7399 7399	3173	103.82	
08-06	08-05 08-05	24717	AMERICAN SAFETY TRAINING 563-3265837 IA BEST BUY MHT 00002428 WEBSTER TX	5732	3173 3173	53.03 207.49	
08-13	08-12	24493	TEXAGS.COM 979-846-2809 TX	5399	3173	250.00	
08-14	08-13	24266	MC - COLLECTIONS HOUSTON TX	9399	3173	300.00	
08-15	08-13	24747	CITY OF HOUSTON-TRAFFI 000-0000000 TX	9399	3173	330.00	
08-15	08-14	24301	WESTCO DONUTS 713-8202010 TX	5441	3173	19.49	
08-18	08-14	24137	WILL TECHNOLOGY, INC. 256-5367000 AL	9399	3173	65.00	
08-18	08-15	24270	HCTRA REBILL 281-8753279 TX	9399	3173	560.00	
08-25	08-22	24692	TMP*MONSTER.COM 800-MONSTER MA	7399	3173	375.00	
08-25	08-22	24492	CAREERBUILDER COM 773-5273600 IL	7399	3173	419.00	
08-26	08-24	24254	IGNITE 214-8004400 TX	8299	3173	19.95	
08-26 08-26	08-24 08-25	24254 24245	IGNITE	8299 5967	3173	19.95	
08-27	08-23	24445	FRIENDFNDWD +16107571929 CVS PHARMACY #7151 Q03 HUMBLE TX	5912	3173 3173	5.90 60.43	
07-28	07-24	24246	HOUSTON TRUCK PARTS INC 7136755694 TX	5013	4637	129.23	
07-28	07-26	24323	COX HARDWARE & LUMBER HOUSTON TX	5072	4637	280.81	
07-28	07-26	24323	COX HARDWARE & LUMBER HOUSTON TX	5072	4637	92.88	
07-28	07-25	24692	NORTHERN TOOL EQUIP TX HOUSTON TX	5251	4637	80.58	
07-29	07-28	24755	WILCO SUPPLY HOUSTON TX	5085	4637	29.84	
07-30	07-29	24323	HUSKY TRAILER & PARTS HOUSTON TX	5561	4637	703.09	
07-31	07-30	24323	HUSKY TRAILER & PARTS HOUSTON TX	5561	4637	190.09	
07-31 07-31	07-30 07-30	24323 24323	HUSKY TRAILER & PARTS HOUSTON TX	5561	4637	64.85	
08-04	08-01	24610	HUSKY TRAILER & PARTS HOUSTON TX SHERWIN WILLIAMS #4381 HOUSTON TX	5561 5231	4637 4637	360.10	
08-04	08-01	24755	WILCO SUPPLY HOUSTON TX	5085	4637	5,093.00 30.21	
08-11	08-07	24246	HOUSTON TRUCK PARTS INC 7136755694 TX	5013	4637	75.68	
08-11	08-07	24226	M & B TOOL & EQUIPMENT 713-477-6188 TX	5251	4637	5,669.59	
08-11	08-07	24226	M & B TOOL & EQUIPMENT 713-477-6188 TX	5251	4637	31.39	
08-11	08-08	24792	HOUSTON HOSE &SPECIALTY HOUSTON TX	5085	4637	792.75	
08-14	08-11	24692	NORTHERN TOOL EQUIP TX HOUSTON TX	5251	4637	94.58	
08-14	08-13	24323	A & I FASTENER & SUPPL 7139466627 TX	5085	4637	1,038.81	
08-18	08-14	24418	UTILITY TRAILERS SALES SOHOUSTON TX	5561	4637	11.51	
08-18 08-19	08-14 08-18	24326 24493	GREAT DANE TRLRS-HOUSTON HOUSTON TX	5999	4637	23.71	
08-25	08-18	24323	TOMMY TOOLS HOUSTON TX A & I FASTENER & SUPPL 7139466627 TX	5251 5085	4637	203.12	
08-25	08-22	24388	BOX SERVICE COMPANY 000-0000000 TX	4214	4637 4637	139.74 67.57	
08-27	08-22	24418	UTILITY TRAILERS SALES SOHOUSTON TX	5561	4637	106.58	
08-27	08-22	24418	UTILITY TRAILERS SALES SOHOUSTON TX	5561	4637	21.22	
08-27	08-25	24692	NORTHERN TOOL EQUIP TX HOUSTON TX	5251	4637	13.25	
07-28	07-26	24323	DEXSIL.COM 203-288-3509 CT	5047	4652	371.99	
07-29	07-25	24492	LAB PRODUCTS, INC 719-9737806 TX	5085	4652	161.79	
07-29	07-25	24492	LAB PRODUCTS, INC 719-9737806 TX	5085	4652	242.69	
08-01	07-31	24692	NORTHERN TOOL EQUIP TX HOUSTON TX	5251	4652	102.76	
08-06	08-04	24695	JAEGER PRODUCTS INC 713-449-9500 TX	5085	4652	1,977.00	
08-06	08-05	24323	DEXSIL.COM 203-288-3509 CT	5047	4652	372.07	
08-07	08-06	24072	SKC GULF COAST INC 281-8598050 TX	5999	4652	194.85	
08-07 08-07	08-06 08-06	24506 24492	BURBANK BARREL & DRUM LTD713-675-0941 TX	7299	4652	635.00	
8-08	08-07	24692	LAB PRODUCTS, INC 719-9737806 TX LOWES #01128* HOUSTON TX	5085 5200	4652 4652	242.69 146.11	





#### Bank of America Commercial Card Company Statement

 Statement Date
 08-27-08
 Payment Due Date
 09-16-08

 Credit Limit
 \$750,000
 Days in Billing Cycle
 31

 Cash Limit
 \$150,000
 Total Payment Due
 \$363,376.19

CES Environmental

Company Account Number:

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			PURCHASING ACTIVIT	Y			
Post Date	Tran Date	Ref. No.	Transactions	мсс	Acct #	Charge	Credit
08-11	08-07	24418	SPARKLING CLEAR INDUSTRIEHOUSTON TX	5046	4652	2,065.85	
08-11	08-08	24418	SPARKLING CLEAR INDUSTRIEHOUSTON TX	5046	4652	808.42	
08-13	08-12	24412	N2IT CONTAINERS LLC 314-771-1202 TX	5085	4652	98.34	
08-18	08-15	24121	CONBAR ENVIRONMENTAL MONROEVILLE NJ	7299	4652	99.84	
08-18	08-15	24323	DEXSIL.COM 203-288-3509 CT	5047	4652	719.16	
08-18 08-19	08-15 08-18	24226 74323	B & L LOCK AND SAFE HOUSTON TX DEXSIL.COM 2032883509 CT	7399 5047	4652 4652	21.65	72 90
08-19 08-21	08-19	24226	B & L LOCK AND SAFE HOUSTON TX	7399	4652	12.99	73.80
08-22	08-21	24492	LAB PRODUCTS, INC 719-9737806 TX	5085	4652	324.48	
08-22	08-21	24492	LAB PRODUCTS, INC 719-9737806 TX	5085	4652	243.24	
08-25	08-22	24418	SPARKLING CLEAR INDUSTRIEHOUSTON TX	5046	4652	2,065.85	
08-27	08-26	24224	PARKER LUMBER 3320 PORT ARTHUR TX	5251	4652	2.97	
07-28	07-25	24332	EXPERTS EXCHANGE LLC 805-7870603 CA	5968	4660	12.95	
08-04	07-31	24717	T-MOBILE #807 SAN ANTONIO TX	4812	4660	358.94	
08-04	08-01	24692	INT*INTERMEDIA NET 800-379-7729 CA	4816	4660	746.85	£6
08-05	08-04	24492	USBPHONEWORLD 480-747-5901 AZ	4812	4660	108.90	
08-07 08-08	08-07 08-06	24692 24717	PCC SALES *#43776599 800-800-0011 NH T-MOBILE #807 SAN ANTONIO TX	5964 4812	4660 4660	842.00 291.89	
08-08	08-08	24692	PCC SALES *#43776599 800-800-0011 NH	5964	4660	1,461.09	
08-11	08-07	24717	T MOBILE NO 7645 HOUSTON TX	4812	4660	476.24	
08-11	08-08	24492	FRY'S ELECTRONICS #34 WEBSTER TX	5732	4660	1,259.54	
08-11	08-09	24692	INTUIT *QB ENTERPRISE 888-246-8848 CA	5734	4660	1,299.00	
08-13	08-11	24445	CIRCUIT CITY #4249 PORT ARTHUR TX	5732	4660	243.54	
08-13	08-12	24692	INT*INTERMEDIA NET 800-379-7729 CA	4816	4660	7.52	
08-14	08-12	24717	T MOBILE NO 7645 HOUSTON TX	4812	4660	481.67	
08-15	08-12	24332	LATHEM TIME CORPORATION 404-6910400 GA	5999	4660	656.08	
08-21	08-20	24692	INT*INTERMEDIA NET 800-379-7729 CA T MOBILE NO 7645 HOUSTON TX	4816 4812	4660	4.18	
08-25 08-25	08-21	24717 24692		5045	4660 4660	692.74 400.50	
08-27	08-25	24332	DMI* DELL SM BUS 800-456-3355 TX EXPERTS EXCHANGE LLC 805-7870603 CA	5968	4660	12.95	
08-27	08-26	24692	INT*INTERMEDIA NET 800-379-7729 CA	4816	4660	1.67	
07-28	07-25	24692	LOWES #01151* PORT ARTHUR TX	5200	4686	42.15	
07-28	07-25	24692	LOWES #01151* PORT ARTHUR TX	5200	4686	472.89	
07-28	07-25	24692	LOWES #01151* PORT ARTHUR TX	5200	4686	187.56	
07-29	07-28	24755	SEA SIDE SUPPLY 409-7219411 TX	5074	4686	1,914.56	
07-30	07-29	24695	DERRICK OIL & SUPPLY CO 409-9852508 TX	5085	4686	760.00	
07-30	07-29	24224	PARKER LUMBER 3320 PORT ARTHUR TX	5251	4686	13.96	
07-31	07-29	24323	DRAGO SUPPLY COMPANY PORT ARTHUR TX	5085	4686	1,077.07	
07-31	07-29 07-29	24323 24755	DRAGO SUPPLY COMPANY PORT ARTHUR TX COASTAL WELDING SUPPLY INGROVES TX	5085	4686	80.37	
07-31 08-04	07-29	24755	JJ DISCOUNT LIQUOR PORT ARTHUR TX	5085 5921	4686 4686	821.08 53.44	
08-04	08-03	24692	LOWES #01151* PORT ARTHUR TX	5200	4686	259.35	
08-05	08-04	24323	DRAGO SUPPLY COMPANY 409-983-4911 TX	5085	4686	824.90	
08-05	08-02	24755	COASTAL WELDING SUPPLY INGROVES TX	5085	4686	96.35	
08-05	08-04	24755	COASTAL WELDING SUPPLY INGROVES TX	5085	4686	334.18	
08-05	08-04	24246	DRAGO TRUE VALUE HOWR CO PORT ARTHUR TX	5251	4686	63.81	
08-06	08-05	24692	LOWES #01151* PORT ARTHUR TX	5200	4686	34.60	
08-06	08-04	24323	DRAGO SUPPLY COMPANY PORT ARTHUR TX	5085	4686	531.62	
08-08	08-06	24323	DRAGO SUPPLY COMPANY PORT ARTHUR TX	5085	4686	709.36	
08-11 08-13	08-09 08-11	24692 24332	LOWES #01151* PORT ARTHUR TX #784 PORT ARTHUR NEWS PORT ARTHUR TX	5200 5968	4686 4686	1,732.66	
08-14	08-11	24332	DRAGO SUPPLY COMPANY PORT ARTHUR TX	5085	4686	502.50 685.85	
08-14	08-13	24695	DERRICK OIL & SUPPLY CO 409-9852508 TX	5085	4686	760.00	
08-14	08-13	24692	LOWES #01151* PORT ARTHUR TX	5200	4686	504.00	
08-15	08-13	24323	DRAGO SUPPLY COMPANY PORT ARTHUR TX	5085	4686	84.21	
08-15	08-14	24692	LOWES #01151* PORT ARTHUR TX	5200	4686	223.23	
98-15	08-14	24692	LOWES #01151* PORT ARTHUR TX	5200	4686	108.22	
08-18	08-15	24610	HEB GROCERY #589 PORT AUTHUR TX	5411	4686	32.54	
08-18	08-15	24330	WINNIE LIQOUR STORE 800-6184428 TX	5921	4686	22,92	
08-25	08-22	24695	DERRICK OIL & SUPPLY CO 409-9852508 TX	5085	4686	722.00	
07-30	07-28	24275	LIQUID ENVIRONMENTAL SOLU180-0254717 TX	4900	6554	660.00	
07-30	07-29	24224	POLLUTION CONTROL 219-397-3951 IN	8734	6554	2,535.78	
07-30	07-29	24792	CLARK FIRE EQUIPMENT 713-455-1755 TX	5999	6554	732.85	
07-31	07-29 07-30	24418 24301	SPARKLING CLEAR INDUSTRIEHOUSTON TX REPUBLIC WASTE SE01 OF 01713-8490400 TX	5046 4900	6554 6554	2,238.90 38,000.00	
07-31							



### Bank of America Commercial Card Company Statement

08-27-08	Payment Due Date	09-16-08
\$750,000	Days in Billing Cycle	31
\$150,000	<b>Total Payment Due</b>	\$363,376.19
	\$750,000	08-27-08 Payment Due Date \$750,000 Days in Billing Cycle \$150,000 Total Payment Due

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Company Account Number:

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			CARDHOLDER ACTIV	Same and the same			
	<u>v</u>		PURCHASING ACTIVI	TY			
Post Date	Tran Date	Ref. No.	Transactions	мсс	Acct #	Charge	Credit
08-04	07-31	24736	H W PETROLEUM COMPANY HOUSTON TX	5172	6554	45,074.32	
8-04	08-01	24425	LEVIAS ELECTRICAL SERV 7139527782 TX	1731	6554	4,265.00	
8-04 8-06	07-30 08-05	24031 24692	BYRD PLUMBING CO 7137348400 TX AIA CRP 800-460-7836 WI	1711 5399	6554 6554	968.84 262.57	
8-06	08-05	24692	AIA CRP 800-460-7836 WI	5399	6554	691.17	
8-06	08-05	24692	AIA CRP 800-460-7836 WI	5399	6554	205.42	
8-06	08-05	24269	TWINCO INC 713-733-8946 TX	5999	6554	215.00	
8-06	08-05	24301	CLEAN EARTH SYSTEM 813-9306688 FL	7399	6554	1,766.00	
8-06	08-05	24388	CISCO BOILER SERVICE CO IHOUSTON TX	7299	6554	5,975.40	
8-06 8-06	08-05 08-06	24323 24246	LEWIS CRANE & HOIST 7134339070 TX CODE RED SAFETY 219-989-4630 IN	7394 5399	6554 6554	937.50 8,454.34	
8-06	08-05	24493	RAIN FOR RENT 14 6613999124 CA	7399	6554	969.92	
8-06	08-05	24493	RAIN FOR RENT 14 6613999124 CA	7399	6554	4,595.84	
8-06	08-05	24493	RAIN FOR RENT 14 6613999124 CA	7399	6554	1,143.33	
8-06	08-05	24493	RAIN FOR RENT 14 6613999124 CA	7399	6554	1,107.00	
8-06	08-05	24493	RAIN FOR RENT 14 6613999124 CA	7399	6554	3,908.18	
8-06	08-05	24493	RAIN FOR RENT 14 6613999124 CA	7399	6554	12,030.80	
8-06	08-05	24493 24792	RAIN FOR RENT 14 6613999124 CA ALPHA MARINE SOLUTIONS 281-457-3533 TX	7399 5169	6554 6554	2,825.33 3,812.02	
8-07 8-08	08-05 08-06	24/92	LABCAL SERVICES 281-4741334 TX	8734	6554	1,550.00	
8-08	08-07	24492	CED #3276 713-6929504 TX	5065	6554	3,571.86	
8-08	08-06	74224	GULFSOUTH INTERMOD 504-616-4958 LA	5085	6554	2,2,2,00	23,215.00
8-11	08-07	24736	H W PETROLEUM COMPANY HOUSTON TX	5172	6554	37,881.26	
08-11	08-08	24326	CHEM-AQUA 972-438-0332 TX	5085	6554	214.38	
8-11	08-08	24326	CHEM-AQUA 972-438-0332 TX	5085	6554	2,170.00	
8-11	08-08	24326 24266	CHEM-AQUA 972-438-0332 TX SOUTHWEST ENGINEERS SLIDELL LA	5085 7299	6554 6554	4,362.27 1,848.51	
)8-11 )8-11	08-08 08-09	24692	SOUTHWEST ENGINEERS SLIDELL LA D&B*SMALL BUSINESS 800-333-0505 NJ	7399	6554	117.99	
8-11	08-08	24112	SUNCOAST CHEMICAL, INC 888-8599219 TX	7299	6554	2,426,45	
8-14	08-12	24388	DIXIE HARDWARE PLUMBIN HOUSTON TX	5251	6554	84.01	
8-14	08-13	24792	ALPHA MARINE SOLUTIONS 281-457-3533 TX	5169	6554	2,044.49	
8-14	08-13	24792	ALL TEX SAFETY SUPPLIES 2818935550 TX	5085	6554	223.22	
8-14 8-14	08-13 08-13	24493 24493	RAIN FOR RENT 19 4099623121 TX RAIN FOR RENT 14 6613999124 CA	7399	6554	1,910.78	
8-14	08-13	24493	RAIN FOR RENT 14 6613999124 CA	7399	6554 6554	1,630.45 261.58	
8-15	08-13	24418	SPARKLING CLEAR INDUSTRIEHOUSTON TX	5046	6554	3,043.92	
8-15	08-13	24736	ADVANCED GAS & EQUIPMENT HOUSTON TX	5072	6554	7,076.41	
8-15	08-14	24224	LIBERTY OFFICE PRO WWW.LIBERTYOFTX	5943	6554	1,641.08	
8-18	08-15	24761	WHOLESALEELCTRICSPPLYC HOUSTON TX	5065	6554	2,071.44	
8-26	08-26	74024	PURCHASE ADJUSTMENT	4900	6554	4.25	138.17
)7-28 )7-29	07-26 07-28	24224 24224	PARKER LUMBER 3320 PORT ARTHUR TX PARKER LUMBER 3320 PORT ARTHUR TX	5251 5251	9658 9658	4.25 27.57	
7-31	07-30	24755	COASTAL WELDING SUPPLY INGROVES TX	5085	9658	526.64	
7-31	07-30	24455	WAL-MART #0408 NEDERLAND TX	5411	9658	21.79	
7-31	07-29	24455	WAL-MART #0449 PORT ARTHUR TX	5411	9658	45.54	
8-04	08-01	24692	LOWES #01151* PORT ARTHUR TX	5200	9658	85.28	
8-07 8-07	08-06 08-06	24224 24224	PARKER LUMBER 3320 PORT ARTHUR TX PARKER LUMBER 3320 PORT ARTHUR TX	5251 5251	9658 9658	87.04 19.47	
8-08	08-07	24224	PARKER LUMBER 3320 PORT ARTHUR TX	5251	9658	51.67	
8-08	08-07	24224	PARKER LUMBER 3320 PORT ARTHUR TX	5251	9658	116.14	
8-08	08-07	24455	WAL-MART #0408 NEDERLAND TX	5411	9658	28.13	
8-11	08-08	24692	LOWES #01151* PORT ARTHUR TX	5200	9658	86.60	
8-11	08-08	24692	LOWES #01151* PORT ARTHUR TX	5200	9658	302.02	
8-11 8-13	08-08 08-11	24224 24323	PARKER LUMBER 3320 PORT ARTHUR TX	5251	9658	39.76	
8-13	08-11	24523	DRAGO SUPPLY COMPANY PORT ARTHUR TX LOWES #01151* PORT ARTHUR TX	5085 5200	9658 9658	303.68 5.39	
8-19	08-16	24755	COASTAL WELDING SUPPLY INGROVES TX	5085	9658	248.77	
8-20	08-18	24755	JIM SNELL MASTER PLUMBER NEDERLAND TX	1711	9658	204.59	
8-20	08-19	24266	FASTENAL CO-MO/TO 507-453-8920 MN	5072	9658	763.40	
8-26	08-25	24506	GPM PUMP AND SEAL, LLC 281-764-1311 TX	5999	9658	615.94	
7-28	07-24	24202	HEIGHTS ARMATURE WORKS INHOUSTON TX	5065	5649	335.58	
7-28	07-25	24761	WHOLESALEELCTRICHOUSTO HOUSTON TX	5065	5649	781.27	
)7-28 )7-28	07-24 07-25	24388 24761	DIXIE HARDWARE PLUMBIN HOUSTON TX MOORE SUPPLY CO. 120 HOUSTON TX	5251 5251	5649 5649	60.22 19.80	
7-28	07-25	24761	MOORE SUPPLY CO. 120 HOUSTON TX	5251	5649	15.25	
7-28	07-24	74388	DIXIE HARDWARE PLUMBIN HOUSTON TX	5251	5649		25.96



#### Bank of America Commercial Card Company Statement

 Statement Date
 08-27-08
 Payment Due Date
 09-16-08

 Credit Limit
 \$750,000
 Days in Billing Cycle
 31

 Cash Limit
 \$150,000
 Total Payment Due
 \$363,376.19

**CES Environmental** 

Company Account Number:

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	*	The second secon	PURCHASING ACTIVIT	ΓY			
Post	Tran	l n.c.v.	2.55 5.85	мсс		Channa	C414
Date	Date	Ref. No.	Transactions	10000000	Acct #	Charge	Credit
7-30	07-28	24388	DIXIE HARDWARE PLUMBIN HOUSTON TX	5251	5649	9.06	
8-04 8-06	08-02 08-05	24493 24493	TOMMY TOOLS HOUSTON TX PIPELINE SUPPLY & SVC CO 7137470090 TX	5251 5172	5649 5649	19,45 60.62	
8-07	08-06	24224	PARKER LUMBER 3320 PORT ARTHUR TX	5251	5649	91.09	
8-07	08-05	24388	DIXIE HARDWARE PLUMBIN HOUSTON TX	5251	5649	27.60	
8-07	08-05	24388	DIXIE HARDWARE PLUMBIN HOUSTON TX	5251	5649	115.05	
08-11	08-07	24323	DRAGO SUPPLY COMPANY 409-983-4911 TX	5085	5649	379.58	
08-11	08-07	24695	DERRICK OIL & SUPPLY CO 409-9852508 TX	5085	5649	571.50	
08-14 08-14	08-13 08-13	24445 24445	POLYSPEC LLC 281-397-0033 TX POLYSPEC LLC 281-397-0033 TX	5039 5039	5649 5649	784.00 686.00	
08-15	08-13	24639	PARR INSTRUMENTS CO 309-7627716 IL	5046	5649	220.60	
08-18	08-16	24323	COX HARDWARE & LUMBER HOUSTON TX	5072	5649	160.60	
08-25	08-22	24692	LOWES #01151* PORT ARTHUR TX	5200	5649	659.07	
08-25	08-23	24692	LOWES #01151* PORT ARTHUR TX	5200	5649	233.63	
08-25	08-22	24445	HUGHES-SUPPLY 9030 BEAUMONT TX	5211	5649	209.57	
08-26	08-25	24692	LOWES #01151* . PORT ARTHUR TX	5200 5085	5649 5649	123.60 684.01	
08-27 08-27	08-25 08-26	24323 24266	DRAGO SUPPLY COMPANY PORT ARTHUR TX FASTENAL CO-MO/TO 507-453-8920 MN	5072	5649	1,966.91	
08-27	08-20	24792	HOUSTON HOSE &SPECIALTY HOUSTON TX	5085	0402	24.52	
08-11	08-08	24761	WHOLESALEELCTRICHOUSTO 713-748-6100 TX	5065	0402	104.41	
08-13	08-12	24761	WHOLESALEELCTRICHOUSTO HOUSTON TX	5065	0402	116.34	
08-13	08-12	24493	RITTER LUMBER STORE NEDERLAND TX	5211	0402	2,662.95	
08-18	08-15	24246	THE REYNOLDS COMPANY 682-647-2100 TX	5065	0402	93.27	
08-19	08-18	24493	WILDCAT ELECTRIC SUPPLY HOUSTON TX	5065	0402	129.18	
08-25 08-25	08-22 08-22	24692 24332	LOWES #01128* HOUSTON TX #784 PORT ARTHUR NEWS PORT ARTHUR TX	5200 5968	0402	86.32 732.00	
08-25	08-22	24388	DIXIE HARDWARE PLUMBIN HOUSTON TX	5251	0402	40.59	
07-30	07-29	24692	LOWES #01151* PORT ARTHUR TX	5200	5858	200.01	
07-31	07-30	24692	LOWES #01151* PORT ARTHUR TX	5200	5858	150.10	
08-04	08-01	24493	WILDCAT ELECTRIC SUPPLY HOUSTON TX	5065	5858	300.75	
08-04	08-01	24158	COMMERCIAL EQUIPMENT SALE713-2378682 TX	5046	5858	300.00	
08-06 08-13	08-05 08-12	24323 24692	DRAGO SUPPLY COMPANY 409-983-4911 TX LOWES #01151* PORT ARTHUR TX	5085 5200	5858 5858	47.36 972.17	
08-15	08-14	24692	LOWES #01151* PORT ARTHUR TX	5200	5858	163.02	
08-20	08-19	24692	LOWES #01151* PORT ARTHUR TX	5200	5858	443.49	
08-20	08-19	24692	LOWES #01151* PORT ARTHUR TX	5200	5858	38.36	
08-20	08-18	24266	FASTENAL CO-MO/TO 507-453-8920 MN	5072	5858	572.35	22722
08-20	08-19	74692	LOWES #01151* PORT ARTHUR TX	5200	5858		20.73
			PUI	RCHASI	NG ACTIV	ITY	\$311,603.11
			CORPORATE T & E ACTI	VITY			S 11 - 331
Post Date	Tran Date	Ref. No.	Transactions	мсс	Acct #	Charge	Credit
	and the second	INTERNATIONAL PROPERTY AND	V5/20101070701010707010				975.748.00.00
07-30 07-30	07-28 07-28	24270 24270	SKEETERS HOUSTON TX SKEETERS HOUSTON TX	5812 5812	3173 3173	20.73 3.19	
07-30	07-28	24224	GRINGO'S MEXICAN K LA PORTE TX	5812	3173	48.57	
08-01	07-30	24224	DISTRICT 7 GRILL HOUSTON TX	5812	3173	50.59	
08-05	08-04	24323	TASTE OF CHINA BUFFET LA PORTE TX	5814	3173	45.75	
08-07	08-06	24224	DISTRICT 7 GRILL HOUSTON TX	5812	3173	64.67	
08-18	08-14	24610	PAPPAS SEAFOOD HOUSE #008HOUSTON TX	5812	3173	118.51	
08-19	08-18	24323 24431	QUIZNOS SUB #1591 Q54 HOUSTON TX HOUSTON ROCKETS TICKETS 713-7587200 TX	5814 7922	3173	15.33 792.00	
08-20 08-25	08-15 08-23	24431	POTBELLY 124 DULLES DC	5814	3173	19.61	
08-25	08-24	24610	GEORGE BUSH INT'L AIRPORTHOUSTON TX	5812	3173	8.21	
08-26	08-24	74548	STARBUCKS 1300 WIEN FLU 0826 4.80 EUR .677009	5812	3173	7.09	
08-12	08-11	24055	SOUTHWESTERN PNEUMA, INC ELLAVILLE GA	7513	4637	814.64	
08-18	08-15	24055	SOUTHWESTERN PNEUMA, INC ELLAVILLE GA	7513	4637	37.04	
08-19	08-18	24055	SOUTHWESTERN PNEUMA, INC ELLAVILLE GA	7513	4637	23.12	
08-07	08-05	24492	MOTEL 6 210-5336667 TX	3700	4660	77.04	
07-29 07-29	07-25 07-27	24323 24323	ECONOLODGE PORT ARTHUR PORT ARTHUR TX ECONOLODGE PORT ARTHUR PORT ARTHUR TX	3644 3644	4686 4686	409.40 724.43	
		47343	CONTRACTOR FOR THE FURTHER FOR THE ARTHUR IX	1 2077	1 7000	144.43	



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#### **Bank of America Commercial Card Company Statement**

Statement Date 08-27-08 Payment Due Date 09-16-08 \$750,000 Days in Billing Cycle Credit Limit Cash Limit \$150,000 Total Payment Due \$363,376.19

CES Environmental

Company Account Number:

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			CARDHOLDER ACTIVI	TY		7 (9)	
			CORPORATE T & E ACTI	VITY			
Post Date	Tran Date	Ref. No.	Transactions	MCC	Acct #	Charge	Credit
07-29	07-27	24323	ECONOLODGE PORT ARTHUR PORT ARTHUR TX	3644	4686	716.45	Citaii
07 20	07-28	24605	Arrival: 07-13-08 TRACYS SEAFOOD DELI PORT ARTHUR TX	5812	4686	26,16	
07-30 07-31	07-28	24695 24323	TRACYS SEAFOOD DELI PORT ARTHUR TX HAPPY DONUTS PORT ARTHUR TX	5812	4686	62.96	
08-04	08-01	24323	ECONOLODGE PORT ARTHUR PORT ARTHUR TX	3644	4686	402.45	
00 01		24525	Arrival: 07-28-08		1000		
08-06	08-03	24323	ECONOLODGE PORT ARTHUR PORT ARTHUR TX Artival: 07-13-08	3644	4686	724.43	
08-06	08-03	24323	ECONOLODGE PORT ARTHUR PORT ARTHUR TX Arrival: 07-13-08	3644	4686	716.45	
08-07	08-06	24323	ECONOLODGE PORT ARTHUR PORT ARTHUR TX Arrival: 07-23-08	3644	4686	1,207.36	
08-11	08-08	24323	ECONOLODGE PORT ARTHUR PORT ARTHUR TX Arrival: 08-04-08	3644	4686	321.96	
08-11	08-09	24323	HAPPY DONUTS PORT ARTHUR TX	5812	4686	42.18	
08-11	08-10	24323	ECONOLODGE PORT ARTHUR PORT ARTHUR TX	3644	4686	724.43	
08-11	08-10	24323	Arrival: 07-13-08 ECONOLODGE PORT ARTHUR PORT ARTHUR TX	3644	4686	716.45	
			Arrival: 07-13-08	1 14-0 (15)-12 17-13-13-13	5035506		
08-12	08-10	24755	ACAPULCO MEXICAN GRILL PORT ARTHUR TX	5812 5814	4686 4686	68.40 15.14	
08-12 08-13	08-11	24427 24323	SONIC #1234 PORT ARTHUR TX ECONOLODGE PORT ARTHUR PORT ARTHUR TX	3644	4686	183.98	
08-13	08-11	24323	Arrival: 08-09-08 ECONOLODGE PORT ARTHUR PORT ARTHUR TX	3644	4686	431.20	
	10 028	200	Arrival: 07-23-08				
08-14	08-13	24427	MCDONALD'S F7377 PORT ARTHUR TX	5814	4686	14.70	
08-15	08-13	24323	ECONOLODGE PORT ARTHUR PORT ARTHUR TX Arrival: 07-23-08	3644	4686	172.48	
08-18	08-15	24427	DENNY'S #7838 HUMBLE TX	5814	4686	36.99	
08-25	08-15	24323	ECONOLODGE PORT ARTHUR PORT ARTHUR TX	3644	4686	367.96	
08-25	08-15	24323	ECONOLODGE PORT ARTHUR PORT ARTHUR TX	3644	4686	321.96	
08-25	08-17	24323	ECONOLODGE PORT ARTHUR PORT ARTHUR TX	3644	4686	656.93	
08-25	08-17	24323	ECONOLODGE PORT ARTHUR PORT ARTHUR TX	3644	4686	649.70	
08-25 08-25	08-18 08-20	24323 24323	ECONOLODGE PORT ARTHUR PORT ARTHUR TX ECONOLODGE PORT ARTHUR PORT ARTHUR TX	3644 3644	4686 4686	431.20 172.48	
08-25	08-21	24323	Arrival: 07-23-08 ECONOLODGE PORT ARTHUR PORT ARTHUR TX	3644	4686	86.24	
08-25	08-22	24323	Arrival: 07-23-08 ECONOLODGE PORT ARTHUR PORT ARTHUR TX	3644	4686	367.96	
08-26	08-24	24323	Arrival: 08-18-08 ECONOLODGE PORT ARTHUR PORT ARTHUR TX	3644	4686	624.98	
07.20	07.25	24421	Arrival: 07-13-08	8022		£ 730 00	
07-30 08-04	07-25 08-02	24431 24692	HOUSTON ROCKETS TICKETS 713-7587200 TX LONE STAR SPORTS & ENT 832-667-2000 TX	7922 7922	6554 6554	5,720.00 725.00	
08-15	08-02	24493	BRIGHT TRUCK LEASING-003 HOUSTON TX	7513	6554	905.41	
08-25	08-22	24270	SKEETERS HOUSTON TX	5812	6554	36.53	
07-28	07-24	24164	JACK IN THE BO00006478 PORT ARTHUR TX	5814	9658	3.78	
07-28	07-26	24164	JACK IN THE BO00006478 PORT ARTHUR TX	5814	9658	5.39	
07-30	07-29	24427	MCDONALD'S F7377 PORT ARTHUR TX	5814	9658	4.87	
07-31	07-29	24164	JACK IN THE BO00006478 PORT ARTHUR TX	5814	9658	3.78	
08-04 08-04	07-28 08-01	24164 24695	JACK IN THE BO00006478 PORT ARTHUR TX TRACYS SEAFOOD DELI PORT ARTHUR TX	5814 5812	9658 9658	7.23	
08-06	08-04	24164	JACK IN THE BO00047159 HOUSTON TX	5814	9658	25.33 7.12	
08-07	08-05	24164	JACK IN THE BO00006478 PORT ARTHUR TX	5814	9658	3.78	
08-07	08-05	24164	JACK IN THE BO00006478 PORT ARTHUR TX	5814	9658	10.91	
08-08	08-07	24323	HAPPY DONUTS PORT ARTHUR TX	5812	9658	32.46	
08-08	08-06	24695	TRACYS SEAFOOD DELI PORT ARTHUR TX	5812	9658	9.18	
08-13	08-11	24695	TRACYS SEAFOOD DELI PORT ARTHUR TX	5812	9658	16.69	
08-13	08-11	24164	JACK IN THE BO00047159 HOUSTON TX	5814	9658	7.12	
08-18	08-14	24164	JACK IN THE BO00036715 PORT ARTHUR TX	5814	9658	18.32	
08-18 08-18	08-14 08-16	24164 24695	JACK IN THE BO00036681 BAYTOWN TX TRACYS SEAFOOD DELI PORT ARTHUR TX	5814 5812	9658 9658	7.23 11.07	
08-21	08-19	24695	TRACYS SEAFOOD DELI PORT ARTHUR TX	5812	9658	20.59	
08-21	08-19	24164	JACK IN THE BO00047159 HOUSTON TX	5814	9658	6.25	
08-25	08-21	24164	JACK IN THE BO00036483 BAYTOWN TX	5814	9658	5.72	
07-28	07-26	24013	SMOKIN J HOUSTON TX	5812	5649	30.25	





#### Bank of America Commercial Card Company Statement

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 08-27-08
 Payment Due Date
 09-16-08

 Credit Limit
 \$750,000
 Days in Billing Cycle
 31

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 \$150,000
 Total Payment Due
 \$363,376.19

**CES Environmental** 

Company Account Number:

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08-01 08-05 08-07 08-08	Tran Date 07-29 07-29 07-30 07-31 08-03	Ref. No. 24323 24498	CORPORATE T & E ACTI	MCC	1 1	V	
Date 07-31 07-31 08-01 08-01 08-05 08-07 08-08	07-29 07-29 07-30 07-31	24323	Transactions	MCC	1 1	V=000000000000000000000000000000000000	100 <b>00</b> 1111100000000
07-31 08-01 08-01 08-05 08-07 08-08	07-29 07-30 07-31			MICC	Acet#	Charge	Credit
08-01 08-01 08-05 08-07 08-08	07-30 07-31	24498	SPANKY'S HOUSTON TX	5812	5649	27.74	
08-01 08-05 08-07 08-08	07-31		HINZE'S BBQ SEALY TX	5812	5649	21.84	
08-05 08-07 08-08		24761	JOE'S CRAB-610 HOUSTON TX	5812	5649	35.21	
08-07 08-08	100-03	24493 24755	CASA OLE #612 PORT ARTHUR TX ACAPULCO MEXICAN GRILL PORT ARTHUR TX	5812 5812	5649 5649	41.35 55.23	
08-08	08-05	24164	SHONEY'S RESTAIOOOZO12 HOUSTON TX	5814	5649	22.01	
1	08-06	24323	HOTEL BAYTOWN TX Arrival: 08-05-08	3562	5649	127.43	
08-08	08-06	24427	MCDONALD'S F7377 PORT ARTHUR TX	5814	5649	14.38	
08-11	08-08	24323	FAMOUS BUFFET GROVES TX	5814	5649	33.00	
08-11	08-09	24323	LA QUINTA INN & SUITES WINNIE TX Arrival: 08-08-08	3516	5649	108.47	
08-13	08-12	24427	MCDONALD'S F7377 PORT ARTHUR TX	5814	5649	18.54	
08-18	08-15	24695	TRACYS SEAFOOD DELI PORT ARTHUR TX	5812	5649	33.73	
08-25	08-23	24323	POPEYE'S #307 PORT ARTHUR TX	5814	5649	9.29	
08-25	08-22	24695	TRACYS SEAFOOD DELI PORT ARTHUR TX	5812	5649	17.07	
08-26	08-25	24323	ECONOLODGE PORT ARTHUR PORT ARTHUR TX Arrival: 07-13-08 ECONOLODGE PORT ARTHUR PORT ARTHUR TX	3644	5649	719.92	
08-26 08-26	08-25 08-25	24323 24323	Arrival: 07-13-08  ECONOLODGE PORT ARTHUR PORT ARTHUR TX	3644	5649 5649	89.00 91.99	
08-27	08-25	24323	ACAPULCO MEXICAN GRILL PORT ARTHUR TX	5812	5649	24.17	
08-11	08-07	24610	PAPPASITO'S CANTINA #033 HOUSTON TX	5812	0402	38.04	
08-18	08-14	24164	CHILI'S GRI17500011759 PORT ARTHUR TX	5812	0402	39.28	
07-28	07-25	24792	BURGER KING #5094 O07 PORT ARTHUR TX	5814	5858	16.35	
07-31	07-29	24695	TRACYS SEAFOOD DELI PORT ARTHUR TX	5812	5858	36.74	
08-01	07-30	24323	WHATABURGER #562 Q05 GROVES TX	5814	5858	16.46	
08-01	07-31	24445	LUBYS CAFE #0042 Q99 PORT ARTHUR TX	5814	5858	52.28	
08-04	08-01	24695	TRACYS SEAFOOD DELI PORT ARTHUR TX	5812	5858	20.97	
08-05	08-04	24427	MCDONALD'S F7377 PORT ARTHUR TX	5814	5858	8.85	
08-06	08-04	24695	TRACYS SEAFOOD DELI PORT ARTHUR TX	5812	5858	20.29	
08-07	08-06	24445	LUBYS CAFE #0042 Q99 PORT ARTHUR TX	5814	5858	104.55	
08-07	08-05	24988	LA FIESTA MEXICAN RESTAURPORT ARTHUR TX	5812	5858	61.64	
08-11	08-07	24164	JACK IN THE BO00036715 PORT ARTHUR TX	5814	5858	12.28	
08-11	08-08	24013	BAYTOWN SEAFOOD MARKET GROVES TX	5812	5858	60.93	
08-12	08-11	24445	LUBYS CAFE #0042 Q99 PORT ARTHUR TX	5814	5858	29.25	
08-14	08-12 08-13	24988	LA FIESTA MEXICAN RESTAURPORT ARTHUR TX	5812	5858	35.00	
08-15 08-15	08-14	24695 24158	TRACYS SEAFOOD DELI PORT ARTHUR TX RICHARDS CAFE 409-9854914 TX	5812 5812	5858 5858	23.35 23.88	
08-18	08-15	24158	RICHARDS CAFE 409-9854914 TX	5812	5858	47.76	
08-25	08-20	24323	ECONOLODGE PORT ARTHUR PORT ARTHUR TX	3644	5858	80.49	
08-25	08-22	24323	ECONOLODGE PORT ARTHUR PORT ARTHUR TX Arrival: 08-11-08	3644	5858	919.90	
			COL	RPORAT	ЕТ&ЕА	CTIVITY	\$24,306.17
		g zwest	FUEL & MAINTENANCE AC	TIVIT	<b>/</b>		
Post Date	Tran Date	Ref. No.	Transactions	мсс	Acct #	Charge	Credit
07-28	07-24	24765	RTC HOUSTON HOUSTON TX	7538	4637	209.40	
07-28	07-25	24323	KACALS AUTO/TRUCK SERV HOUSTON TX	7538	4637	490.23	
07-28	07-26	24717	HOUSTON FREIGHTLINERS 713-6724115 TX	5599	4637	21.89	
07-28	07-25	24254	S AND H DIESEL PRODUCT HOUSTON TX	7538	4637	1,347.45	
07-29	07-28	24792	PHILPOTT MOTORS HYUNDAI NEDERLAND TX	5511	4637	1,143.88	
07-30	07-28	24254	S AND H DIESEL PRODUCT HOUSTON TX	7538	4637	1,347.45	
07-30	07-28	24301	MC CARTY DR RADIATOR SVE HOUSTON TX	7531	4637	65.00	
07-30	07-28	24765	RTC HOUSTON HOUSTON TX	7538	4637	276.11	
07-31	07-29	24765	RTC HOUSTON HOUSTON TX	7538	4637	7.58	
07-31	07-30	24755	HOUSTON MACK ISUZU HOUSTON TX	7531	4637	778.14	
07-31	07-29	24717	PERFORMANCE TRUCK #3 HOUSTON TX	5511	4637	5.56	
07-31	07-30	24717	HOUSTON FREIGHTLINERS HOUSTON TX	5599	4637	66.75	
07-31 08-01	07-30 07-30	24717 24717	NEELYS DEALER SUPPLY 713-6759161 TX PERFORMANCE TRUCK # 3 HOUSTON TX	5533 5511	4637 4637	198.73 757.62	



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 08-27-08
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 \$750,000
 Days in Billing Cycle
 31

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 \$150,000
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 \$363,376.19

CES Environmental

Company Account Number:

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	-0		CARDHOLDER ACTIV				
			FUEL & MAINTENANCE A	CTIVITY	<u> </u>		931 W
Post Date	Tran Date	Ref. No.	Transactions	MCC	Acct#	Charge	Credit
08-04	08-01	24717	HOUSTON FREIGHTLINERS HOUSTON TX	5599	4637	24.30	
08-04	08-01	24717	PERFORMANCE TRUCK #3 HOUSTON TX	5511	4637	31.86	
08-04	08-02	24323	STATE LINE EMERG TRUCK VINTON LA	7538	4637	361.13	
08-04	08-01	24765	RTC HOUSTON HOUSTON TX	7538	4637	278.51	
08-04	08-01	24610	LANSDOWNE-MOODY CO, INC 713-672-8366 TX	5599	4637	48.57	
08-06	08-04	24765	RTC HOUSTON HOUSTON TX	7538	4637	371.02	
08-06	08-04	24765	RTC HOUSTON HOUSTON TX	7538	4637	837.18	
08-07 08-08	08-06 08-07	24717 24266	NAPA AUTO PARTS 4077016 HOUSTON TX WELDON PARTS INC 5 HOUSTON TX	5533	4637	23,99	
08-11	08-07	24765	RTC HOUSTON HOUSTON TX RTC HOUSTON TX	5533 7538	4637 4637	34.84 226.76	
08-12	08-11	24717	HOUSTON FREIGHTLINERS HOUSTON TX	5599	4637	213.72	
08-13	08-12	24717	NEELYS DEALER SUPPLY 713-6759161 TX	5533	4637	557.35	
08-14	08-12	24765	RTC HOUSTON HOUSTON TX	7538	4637	53.09	
08-14	08-13	24717	NEELYS DEALER SUPPLY 713-6759161 TX	5533	4637	499.38	
08-18	08-14	24765	RTC HOUSTON HOUSTON TX	7538	4637	675.27	
08-18	08-15	24323	MORRIS TIRE SERVICE, I DERIDDER LA	7534	4637	358.66	
08-18	08-15	24765	RTC HOUSTON HOUSTON TX	7538	4637	359.21	
08-18	08-15	24765	RTC HOUSTON HOUSTON TX	7538	4637	90.48	
08-19	08-18	24717	THE PRUITT CO 713-2228888 TX	7538	4637	2,203.91	
08-20	08-18	24765	RTC HOUSTON HOUSTON TX	7538	4637	286.36	
08-20	08-19	24717	NAPA AUTO PARTS 4077016 HOUSTON TX	5533	4637	11.17	
08-20	08-19	24717	HOUSTON FREIGHTLINERS HOUSTON TX	5599	4637	55.95	
08-21	08-19	24765	RTC HOUSTON HOUSTON TX	7538	4637	7.71	
08-21	08-19	24765	RTC HOUSTON HOUSTON TX	7538	4637	1,205.84	
08-21	08-20	24717	NAPA AUTO PARTS 4077016 HOUSTON TX	5533	4637	57.75	
08-22	08-21	24717	HOUSTON FREIGHTLINERS HOUSTON TX	5599	4637	699.22	
08-22	08-21	24493	PERFORMANCE TRUCK HOUSTON TX	7531	4637	24.94	
08-25	08-21	24765	RTC HOUSTON HOUSTON TX	7538	4637	138.86	
08-25	08-22	24765	RTC HOUSTON HOUSTON TX	7538	4637	156.75	
08-25	08-22	24765	RTC HOUSTON HOUSTON TX	7538	4637	550.78	
08-25	08-22	24765	RTC HOUSTON HOUSTON TX	7538	4637	169.93	
08-25	08-22	24054	THE HEITMAN CO HOUSTON TX	7538	4637	93.10	
08-25	08-22	24717	NEELYS DEALER SUPPLY 713-6759161 TX	5533	4637	88.66	
08-25	08-22	24717	NEELYS DEALER SUPPLY 713-6759161 TX	5533	4637	18.10	
08-25	08-22	24493	PERFORMANCE TRUCK HOUSTON TX	7531	4637	26.10	
08-25	08-21	24207	VICS ROAD SERVICE #4 WINNIE TX	7538	4637	75.00	
08-25 08-25	08-22	24765	RTC HOUSTON HOUSTON TX	7538	4637	65.56	C2 21
08-26	08-22 08-25	74765 24717	RTC HOUSTON HOUSTON TX HOUSTON FREIGHTLINERS 713-6724115 TX	7538	4637	145.03	62.35
08-27	08-25	24765	RTC HOUSTON HOUSTON TX	5599	4637	345.82	
08-27	08-25	24765		7538	4637	56.23	
08-27	08-25	24765	RTC HOUSTON HOUSTON TX RTC HOUSTON HOUSTON TX	7538 7538	4637 4637	446.42 43.99	
08-22	08-20	24695	PAYNE & SON TRUCK CORRA SILSBEE TX	7549	4660	300.00	
07-28	07-25	24427	DIAMOND 367 SHAMROCK GROVES TX	5542	4686	78.08	
07-30	07-28	24427	FISH OR HUNT PT ARTHUR TX	5541	4686	6.88	
07-30	07-28	24427	GULFWAY FOOD MART PORT ARTHUR TX	5541	4686	40.85	
08-01	07-30	24164	RACEWAY6778 69267789 PORT ARTHUR TX	5541	4686	27.93	
10-80	07-30	24427	DIAMOND 367 SHAMROCK GROVES TX	5542	4686	77.41	
08-04	08-01	24427	DIAMOND 367 SHAMROCK GROVES TX	5542	4686	60.44	
08-04	08-01	24427	GULFWAY FOOD MART PORT ARTHUR TX	5541	4686	60.00	
08-04	08-02	24316	SHELL OIL 57542116801 PORT ARTHUR TX	5541	4686	33.41	
08-04	08-02	24316	SHELL OIL 57542116801 PORT ARTHUR TX	5542	4686	39.00	
08-04	08-02	24164	EXXONMOBIL 45969201 PORT ARTHUR TX	5541	4686	11.94	
08-04	08-02	24427	GULFWAY FOOD MART PORT ARTHUR TX	5542	4686	46.98	
08-05	08-03	24164	RACEWAY6783 36067833 PORT ARTHUR TX	5542	4686	85.00	
08-06	08-04	24316	SHELL OIL 57542116801 PORT ARTHUR TX	5542	4686	80.26	
08-06	08-04	24695	HOWARDS AUTOMOTIVE SUPP 409-9829478 TX	5533	4686	227.14	
08-07	08-05	24164	EXXONMOBIL 47652854 DAYTON TX	5542	4686	53.05	
08-08	08-06	24164	EXXONMOBIL 45979028 PORT ARTHUR TX	5541	4686	19.10	
08-08	08-06	24695	HOWARDS AUTOMOTIVE SUPP 409-9829478 TX	5533	4686	214.83	
08-08	08-06	24427	GULFWAY FOOD MART PORT ARTHUR TX	5541	4686	232.95	
08-08	08-06	24427	GULFWAY FOOD MART PORT ARTHUR TX	5542	4686	50.00	
08-11	08-09	24224	MURPHY6756ATWALMRT PORT ARTHUR TX	5542	4686	50.03	
08-11	08-08	24427	DIAMOND 367 SHAMROCK GROVES TX	5542	4686	76.25	
08-11	08-09	24164	RACEWAY6765 65967655 HUMBLE TX	5542	4686	50.00	
8-13	08-11	24164	EXXONMOBIL 45969201 PORT ARTHUR TX	5541	4686	43.52	



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 \$750,000
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 \$150,000
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 \$363,376.19

**CES Environmental** 

Company Account Number:

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	W. 1		CARDHOLDER ACTIVI FUEL & MAINTENANCE AC		7		
Post	Tran	1	FUEL & MAINTENANCE AC	I	1 1		10000
Date	Date	Ref. No.	Transactions	MCC	Acct#	Charge	Credit
08-13	08-11	24625	CHEVRON 00307602 PORT ARTHUR ITX	5542	4686	66.00	
18-14	08-12	24316	SHELL OIL 27540734202 HOUSTON TX	5541	4686	13.24	
8-14	08-12	24316	SHELL OIL 91004055113 PORT ARTHUR TX	5542	4686	35,23	
8-14	08-13	24625	TEXACO 00304163 WINNIE TX	5542	4686	83,44	
8-15	08-13	24164	EXXONMOBIL 45614526 PORT ARTHUR TX	5542	4686	75.00	
8-15	08-13	24164	EXXONMOBIL 47750864 BEAUMONT TX EXXONMOBIL 45614526 PORT ARTHUR TX	5541 5542	4686 4686	12.04 50.00	
)8-18 )8-19	08-15 08-17	24164 24164	EXXONMOBIL 43614326 FORT ARTHUR TX	5542	4686	75.00	
8-06	08-05	24266	WELDON PARTS INC 5 HOUSTON TX	5533	6554	1,316.32	
8-07	08-05	24254	PRO TIRE SERVICES HOUSTON TX	5532	6554	113.10	58
8-08	08-06	24635	RON'S TOWING & RECOVER 713-4776154 TX	7549	6554	429.00	
8-11	08-06	24680	CLEAR GLASS MOBILE SERVICHOUSTON TX	7538	6554	505.23	
8-14	08-13	24717	HOUSTON FREIGHTLINERS HOUSTON TX	5599	6554	254.69	
7-28	07-25	24316	SHELL OIL 57542367503 HOUSTON TX	5542	9658	49.63	
7-28	07-25	24164	EXXONMOBIL 45969201 PORT ARTHUR TX	5541	9658	15.37	
77-28	07-26	24164	EXXONMOBIL 45969201 PORT ARTHUR TX	5541	9658	11.64	
07-28	07-26	24164	EXXONMOBIL 97394340 PORT ARTHUR TX	5541	9658	3.40	
)7-29 )7-29	07-28 07-28	24625	CHEVRON 00307602 PORT ARTHUR ITX CHEVRON 00307602 PORT ARTHUR ITX	5541 5542	9658 9658	5.68 52.85	
08-05	08-04	24625 24492	PILOT Baytown TX	5542	9658	50.18	
18-08	08-06	24164	RACEWAY6778 69267789 PORT ARTHUR TX	5541	9658	8.10	
8-11	08-08	24164	RACEWAY6778 69267789 PORT ARTHUR TX	5542	9658	66.81	
8-12	08-11	24625	TEXACO 00303730 HOUSTON TX	5542	9658	47.11	
8-15	08-14	24610	BUC-EE'S #20 Q39 PEARLAND TX	5542	9658	44.52	
8-18	08-16	24427	FISH OR HUNT PT ARTHUR TX	5541	9658	20.00	
8-21	08-20	24610	BUC-EE'S #20 Q39 PEARLAND TX	5542	9658	45.00	
18-26	08-25	24610	BUC-EE'S #20 Q39 PEARLAND TX	5542	9658	47.01	
17-29	07-28	24717	NAPA AUTO PARTS 4077016 HOUSTON TX	5533	5649	46.40	
8-11	08-08	24427	FISH OR HUNT PRT AURTHER TX	5499	5649	10.33	
8-14	08-13 08-20	24717	TALENS MARINE AND FUEL INLAKE ARTHUR LA NAPA AUTO PARTS 4077016 HOUSTON TX	5983 5533	5649 5649	344.13	
8-21 8-25	08-20	24717 24164	EXXONMOBIL 45614526 PORT ARTHUR TX	5541	5649	41.97 22.70	
8-25	08-21	24164	EXXONMOBIL 45969201 PORT ARTHUR TX	5542	5649	49.00	
8-25	08-22	24224	MURPHY6756ATWALMRT PORT ARTHUR TX	5542	5649	60.00	
8-25	08-23	24164	EXXONMOBIL 45614526 PORT ARTHUR TX	5541	5649	32.70	
8-27	08-25	24164	EXXONMOBIL 45614526 PORT ARTHUR TX	5542	5649	51.33	
77-28	07-25	24112	SINGLETON'S SERVICES INC COLSICANA TX	7538	0402	655.00	
8-04	07-31	24765	RTC HOUSTON HOUSTON TX	7538	0402	473.16	
8-08	08-06	24224	LA GRANGE TIRE, IN LA GRANGE TX	5532	0402	276.81	
8-12 8-18	08-10 08-14	24803 24803	AMERICAN TIRE CO RICHLAND TX AMERICAN TIRE CO RICHLAND TX	5532 5532	0402 0402	565.93 564.15	
7-28	07-24	24164	EXXONMOBIL 45969201 PORT ARTHUR TX	5541	5858	26.17	
8-05	08-04	24625	TEXACO 00304163 WINNIE TX	5541	5858	7.58	
8-06	08-04	24695	HOWARDS AUTOMOTIVE SUPP 409-9829478 TX	5533	5858	63.49	
8-13	08-11	24164	EXXONMOBIL 45969201 PORT ARTHUR TX	5541	5858	27.44	
8-15	08-13	24316	SHELL OIL 57542116801 PORT ARTHUR TX	5541	5858	15.86	
8-20	08-19	24224	MURPHY6756ATWALMRT PORT ARTHUR TX	5542	5858	60.04	
8-21	08-20	24224	MURPHY6756ATWALMRT PORT ARTHUR TX	5542	5858	60.00	
			, FU	EL & MA	INTENAN	CE ACTIVITY	\$27,441.74
			MISCELLANEOUS FEES & ADJ	USTME	NTS		maye
Post Date	Tran Date	Ref. No.	Transactions	MCC	Acct #	Charge	Credit
7-30	110-1-1-1-1-1-1-1						
100000	07-30	24245	INTERNATIONAL TRANSACTION FEE	0001	3173	0.05	
8-26 8-26	08-26 08-26	74548 24245	INTERNATIONAL TRANSACTION FEE INTERNATIONAL TRANSACTION FEE	0001	3173 3173	0.07 0.05	
	00-40	LFAFA	I III I DINING I WINDL I INGIUNO I I WILL THE	1 0001	31/3	0.03	

\*\*363,376.19

Bank of America

09/17/2008

Bank of America

August 2008

9/22/2008

363 376 19

CES Environmental S 09/17/2008

363,376.19

Bank of America

August 2008

9/22/2008

363,376.19

CES Environmental S 09/17/2008

363,376.19

## Online Banking

Full Analysis Busn Chk - (1) (6) : Transaction Details

**Transaction Details:** 

Description: BANK CARD DES:PAYMENT ID:(6) INDN:CES ENVIRONMENTAL CO

ID:(b)(6)

Posting date: 09/17/2008

Amount: \$363,376.19

Type: ACH Debit

Account Full Analysis Busn Chk-(b) (6)

number:



#### Bank of America Commercial Card Cardholder Activity

Statement Date Credit Limit Cash Limit 08-27-08 \$500,000 \$250,000 This is Not a Bill Do Not Pay

Days in Billing Cycle

31 Total Activity

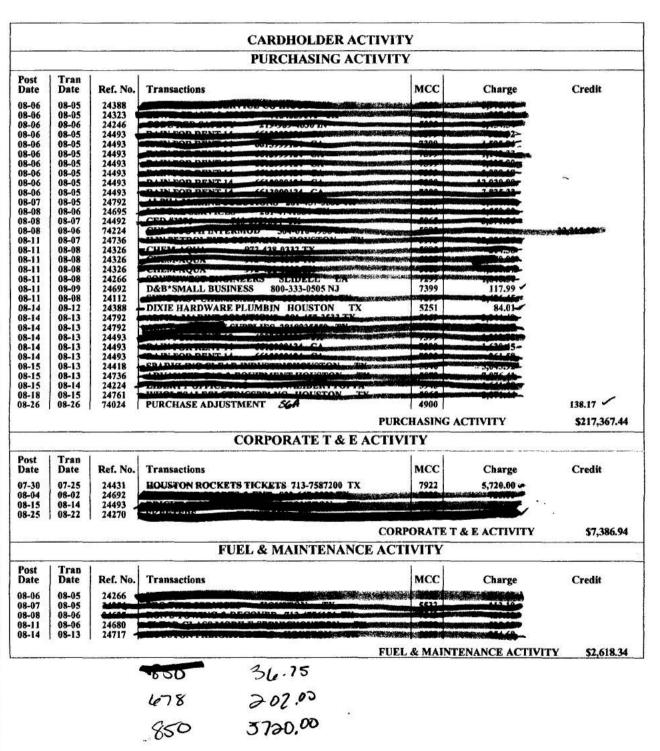
\$227,372.72

GREG BOWMAN CES ENVIRONMENTAL

Card Account Number:

Accounting Code:

Page 2 of 2





#### Bank of America Commercial Card Cardholder Activity

e e d'Atte l'addition (14 hebre au le comme de la comm

GREG BOWMAN CES ENVIRONMENTAL

Card Account Number:

Accounting Code:

 Statement Date
 6\$-27-08
 This is Not a Bill

 Credit Limit
 \$500,000
 Do Not Pay

 Cash Limit
 \$250,000

 Days in Billing Cycle
 31
 Total Activity
 \$227,372.72



Page 1 of 2

			CARDHO	LDER ACTIVITY					
PURCHASING ACTIVITY									
Post Date	Tran Date	Ref. No.	Transactions	MC	c	Charge	Credit		
07-30	07-28	41110	<del>aliqua arrupota una ll'est lle</del> s	A CARLO SERVICE PROPERTY OF THE PARTY OF THE	Or other Designation of the last	SHAPE STATES			
07-30	07-29	24224	DOLLAR OF CONTROL 210 207			14 Table			
07-30	07-29	24792	CHANGE FOURMENT 712 488	1766 TV	A STATE OF THE PERSON NAMED IN	P. S. Contraction of the last			
07-31	07-29	24418		THE RESIDENCE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAME	THE OWNER, NAMED IN	2.222.00			
07-31	07-30	24301 -			-				
08-01	07-31	24224	CHILDRANG CALL	A SA CONTRACTOR OF THE PROPERTY OF THE PARTY	STATE OF THE PERSON.	20020000			
08-04	07-31	24736	THE DETROI FUN COMPANY HOL	GEO11-010-017		43,074.JR			
08-04	08-01	24425	A PULL OF DESTRUCTION OF DAY ALTON	The state of the s	THE OWNER OF THE OWNER,	WE HARD BOOK			
08-04	07-30	24031		17	1				
08-06	08-05	24692	800-400-7030 WI	The second secon	A STATE OF THE PARTY OF	CHANGE TO 2.374			
08-06	08-05	24692	THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER.	NAMES OF THE OWNER OWNER	THE REAL PROPERTY AND PERSONS ASSESSMENT OF THE PERSONS ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSESSMENT ASSE	SECTION AND PROPERTY.			
08-06	08-05	24692	ALL CDD	KANCARAN KININGAN KANCARAN MARAN	- MANAGER	CONTRACTOR OF THE PARTY OF THE			
08-06	08-05	24269	715 755 6740 17	foregoing the section the section of the first	-				
08-06	08-05	24301	CLANAL FADTH SYSTEM 912 0206	688 17	THE REAL PROPERTY.	07400 MAG AG			

Customer Service 1.888.449.2273, 24 hours

Outside the U.S. 1.509.353.6656, 24 hours

For Lost or Stolen Card: 1.888.449.2273, 24 hours

Send Billing Inquiries to: BANK OF AMERICA PO BOX 15184 WILMINGTON DE 19850-5184

Account Summary	y	
Previous Balance		\$0.00
Payments	-	\$0.00
Credits	1. <del>1.</del> 1.	\$0.00
Cash	+	\$0.00
Purchases	+	\$227,372.72
Other Debits	+	\$0.00
Overlimit Fees	+	\$0.00
Cash Fees	+	\$0.00
Other Fees	+	\$0.00
Total Activity	=	\$227,372.72

Please see the reverse side for information about your account.

#### Commercial Card

## Bankof America 🧼

Account No. (b) (6)

Total Activity \$227,372.72

Cardholder Signature

Date

Manager Signature

Date

GREG BOWMAN CES ENVIRONMENTAL 4904 GRIGGS RD HOUSTON TX 77021-3208 \*\*P0019371



Bowman

Trea

**Expiration Date** 

Signature

Cardholder Name

944

FAX to: 713-758-7344

Houston Rockets

Attn: Ticket Services 1510 Polk Street

Houston, TX 77002

Mastercard

Discover

Amex

area de

THANK YOU FOR SHOPPING AT DIXIE HARDWARE PLUMB & ELECT. (713) 747-7717

\*\*\*THIS RECEIPT REQUIRED FOR RETURNS\*\*\*\*
NO RETURNS: BREAKERS-TOOLS-NAILS-SCREWS
8/12/08 10:20AM DS 557 SALE

3/4 X 520" TEFLON TAPE 6.72 259235 6 EA 1.68 EA 3/4 X 520" TEFLON TAPE 49.99 EA S 550454 1 EA 20" HI VELOCITY FAN--CHROME 49.99 1 EA 5.79 EA S 100 WATT HALOGEN OUTDOOR FLOO 5.79 1 EA 1.45 EA VINYL CUBE TAP 3WAY IVORY 531 1.45 1 BX 355173 PLUG BASE IVORY 100 .89 1 EA 2.69 EA \* 355179 SOCKET, PLASTIC, SURFACE MOUN 2.69

SUB-TOTAL: 77.61 TAX:

TOTAL: 84.01 BC AMT: \$84.01

6.40

BK CARD#: X(b) (6)

ID: 1670077327 AUTH: 028592

Host reference #:808085 Bat#012

SWIPED

CARD TYPE:VISA EXPR:XXXX

==>> JRNL#I08085 CUST # \*5

<<==

31 Total Activity

68-27-08

\$10,000

\$5,000

This is Not a Bill

Do Not Pay

\$6,601.95



#### Bank of America Commercial Card Cardholder Activity

SCOTT SHIMMER CES ENVIRONMENTAL

Card Account Number:

Accounting Code:

Credit Limit
Cash Limit
Days in Billing Cycle

Statement Date

DECELVE SEP 02 2008

Page 1 of 2

000000000000000000000000000000000000000	W-100-0-1		CARDHOLDER ACTIV	111		- N. B. C. C. C. C. C. C. C. C. C. C. C. C. C.
(*)	990 = 5.0		PURCHASING ACTIVI	TY		
Post Date	Tran Date	Ref. No.	Transactions	мсс	Charge	Credit
08-04	08-01	24792	- HOUSTON HOSE &SPECIALTY HOUSTON TX	5085	271030	
08-11	08-08	24761	WHOLESALEELCTRICHOUSTO 713-748-6100 TX	5065	104.41	
08-13	08-12	24761	WHOLESALEELCTRICHOUSTO HOUSTON TX	5065	MONTH.	
08-13	08-12	24493	-RITTER LUMBER STORE NEDERLAND TX	5211	2,002.9	4
08-18	08-15	24246	THE REYNOLDS COMPANY 682-647-2100 TX	5065	Same Man	
08-19	08-18	24493	-WILDCAT ELECTRIC SUPPLY HOUSTON TX	5065	19700-	
08-25	08-22	24692	LOWES #01128* HOUSTON TX	5200	Sens.	
08-25	08-22	24332	#784 PORT ARTHUR NEWS PORT ARTHUR TX	5968	- Factor	
08-25	08-22	24388	-DIXIE HARDWARE PLUMBIN HOUSTON TX	5251	4000	

Customer Service	Account Summary	- WEST OF OTHER	A STATE OF THE STA
1.888.449.2273, 24 hours	Previous Balance		\$0.00
120 - 1702 - 170 - 12022	Payments		\$0.00
Outside the U.S.	Credits	-	\$0.00
1,509.353.6656, 24 hours	Cash	+	\$0.00
For Lost or Stolen Card:	Purchases	+	\$6,601.95
1.888.449.2273, 24 hours	Other Debits	+	\$0.00
	Overlimit Fees	+	\$0.00
Send Billing Inquiries to:	Cash Fees	+	\$0.00
BANK OF AMERICA	Other Fees	+	\$0.00
PO BOX 15184 WILMINGTON DE 19850-5184	Total Activity	=	\$6,601.95

Please see the reverse side for information about your account.

#### **Commercial Card**

## Bankof America 🤏

Account No. (b) (6)

Total Activity \$6,601.95

Cardholder Signature Date

Manager Signature

Date

Hadladlandallalladdladdladdladdladdlad

CES ENVIRONMENTAL 4904 GRIGGS RD HOUSTON TX 77021-3208 \*\*P0019368





#### Bank of America Commercial Card Cardholder Activity

Statement Date ,	08-27-08	This is No	t a Bill
Credit Limit	\$10,000	Do No	t Pay
Cash Limit	\$5,000		
Days in Billing Cycle	31	Total Activity	\$6,601.95

SCOTT SHIMMER CES ENVIRONMENTAL

Card Account Number:

Accounting Code:

Page 2 of 2

			CARDHOLDER ACT	TIVITY		
			CORPORATE T & E A	CTIVITY		,
Post Date	Tran Date	Ref. No.	Transactions	мсс	Charge	Credit
08-11 08-18	08-07 08-14	24610 <b>4</b>	THE PROPERTY OF THE PROPERTY O	3010		
	<u> </u>		DATES O MANAGENIA NOCE	CORPORATE T	& E ACTIVITY	\$77.32
			FUEL & MAINTENANCE	ACTIVITY		
Post Date	Tran Date	Ref. No.	Transactions	мсс	Charge	Credit
07-28 08-04	07-25 07-31		SINGLETON'S SERVICES INC COLSICANA TX RTC HOUSTON HOUSTON TX	7538 7538		
08-08 08-12 08-18	08-06 08-10 08-14	24803	-LA GRANGE TIRE, IN AMERICAN TIRE CO RICHLAND TX -AMERICAN TIRE CO RICHLAND TX	5532 5532 5532	500 d 5	
		7.5		FUEL & MAINT	ENANCE ACTIVITY	\$2,535.05

# 9-7-08 Lunch with beny Toni mainine supervises interview. Either shop or facility.

Pappasito's #08 (033) 2515 S. Loop West at So. Main Houston, TX 77054 713-668-5756

A STATE OF THE STA

Server: Eunique H

Table:92

Ticket:51

Name: SCOTT

SHIMMER

Acct: (b) Exp: \*\*\*\*

Card: Visa

Auth: 013024 Roc: N204271 Merchant ID: 67071730337

08/07/2008

12:21pm

Amount:

\$32.04

+ Tip:

\$ 6 De

= Total:

\$ 38.09

X

Dagree to pay above total amount according to card issuer agreement

Let us do the cooking! Party packs are available with fajitas or enchiladas. (713) 668-5756

Complete To-Go menu available online at www.pappasitos.com

GUEST COPY

Lunch, 8-14-08 Bo + Joe Downing. Fateurin for mechanic position in PA.

130010 pec.

CHILI'S-PORT ARTHUR 1175 MERCHANT ID 08/14/08 12:49:33 T087 K-MACK CHK #052 CHARGE 1



AUTH - 080679

CHARGE AMOUNT

0.00

TIP AMOUNT

30.20

TOTAL

39 28

GUEST COPY
WE WELCOME YOUR COMMENTS!
PLEASE CALL US AT 1-800-983-4637
OR VISIT US AT WWW.CHILIS.COM



#### Bank of America Commercial Card Cardholder Activity

LOREN L THOMAS CES ENVIRONMENTAL

Card Account Number:

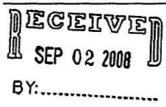
Accounting Code:

 Statement Date
 08-27-08
 This is Not a Bill

 Credit Limit
 \$15,000
 Do Not Pay

 Cash Limit
 \$0

 Days in Billing Cycle
 31 Total Activity
 \$10,835.94



Page 1 of 2

			CARDHOLDER ACTIVIT	ſΥ							
	PURCHASING ACTIVITY										
Post Date	Tran Date	Ref. No.	Transactions	MCC	Charge	Credit					
07-28	07-26	24323	*DEXSIL.COM 203-288-3509 CT	5047	371.99-						
07-29	07-25	24492	-LAB PRODUCTS, INC 719-9737806 TX	5085	161.79-						
07-29	07-25	24492	-LAB PRODUCTS, INC 719-9737806 TX	5085	242.69-						
08-01	07-31	24692	NORTHERN TOOL EQUIP TX HOUSTON TX	5251	102.76						
08-06	08-04	24695	-JAEGER PRODUCTS INC 713-449-9500 TX	5085	1,977.00 -						
08-06	08-05	24323	_DEXSIL.COM 203-288-3509 CT	5047	372.07-	15 <b>4</b> 50					
08-07	08-06	24072	-SKC GULF COAST INC 281-8598050 TX	5999	194.85-	2 estous					
08-07	08-06	24506	BURBANK BARREL & DRUM LTD713-675-0941 TX	7299	635.00-	Part House					
08-07	08-06	24492	-LAB PRODUCTS, INC 719-9737806 TX	5085	242.69-						
08-08	08-07	24692	*LOWES #01128* HOUSTON TX	5200	146.11-						
08-11	08-07	24418	SPARKLING CLEAR INDUSTRIEHOUSTON TX 618	5046	2,065.85						
08-11	08-08	24418	SPARKLING CLEAR INDUSTRIEHOUSTON TX 618	5046	808.42						
08-13	08-12	24412	-N2IT CONTAINERS LLC 314-771-1202 TX	5085	98.34						
08-18	08-15	24121	-CONBAR ENVIRONMENTAL MONROEVILLE NJ	7299	99.84 -						

Customer Service 1.888.449,2273, 24 hours

Outside the U.S. 1.509.353.6656, 24 hours

For Lost or Stolen Card: 1.888.449.2273, 24 hours

Send Billing Inquiries to: BANK OF AMERICA PO BOX 15184 WILMINGTON DE 19850-5184 **Account Summary** Previous Balance \$0.00 **Payments** \$0.00 Credits \$0.00 Cash \$0.00 \$10,835.94 Purchases Other Debits \$0.00 Overlimit Fees \$0.00 Cash Fees \$0.00 Other Fees \$0.00 **Total Activity** \$10,835.94

Please see the reverse side for information about your account.

#### Commercial Card



Account No. (b) (6)

Total Activity \$10,835.94

Cardholder Signature

Manager Signature

Date

Date

Naallaalllaaalalaallaalaallaalaalaalaal

\*\*P0819374

LOREN L THOMAS CES ENVIRONMENTAL 4904 GRIGGS RD

HOUSTON TX 77021-3208







#### Bank of America Commercial Card Cardholder Activity

1000 Wangaran 100 Miles hir (100 Miles )

Statement Date .	<del>0</del> 8-27-08	This is No	ot a Bill
Credit Limit	\$15,000	Do No	t Pay
Cash Limit	\$0		₹6
Days in Billing Cycle	31	Total Activity	\$10,835.94

LOREN L THOMAS CES ENVIRONMENTAL

Card Account Number:

(b) (d)

Accounting Code:

Page 2 of 2

			CARDHOLDER ACTIV	VITY							
	PURCHASING ACTIVITY										
Post Date	Tran Date	Ref. No.	Transactions	MCC	Charge	Credit					
08-18	08-15	24323	DEXSIL.COM 203-288-3509 CT 618	5047	719.16						
08-18	08-15	24226	-B & L LOCK AND SAFE HOUSTON TX	7399	21.65	73,80 Fre					
08-19	08-18	74323	DEXSIL.COM 2032883509 CT 619	5047		73.80					
08-21	08-19	24226	-B & L LOCK AND SAFE HOUSTON TX	7399	12.99-						
08-22	08-21	24492	LAB PRODUCTS, INC 719-9737806 TX	5085	324.48						
08-22	08-21	24492	LAB PRODUCTS, INC 719-9737806 TX	5085	243.24						
08-25	08-22	24418	-SPARKLING CLEAR INDUSTRIEHOUSTON TX	5046	2,065.85-						
08-27	08-26	24224	PARKER LUMBER 3320 PORT ARTHUR TX	5251	2.97-						
			The state of the s	PURCHASING A	CTIVITY	\$10,835.94					

812

# 1 case

THANK YOU FOR SHOPPING AT PARKER LUMBER - PORT ARTHUR (409) 988-2745

8/26/08 2 39PM MVASQUEZ 325 SALE

25 HILLMAN EA .11 EA NUTS, BOLTS, SCREWS, WASHERS, KEY 2.75

SUB-TOTAL:

2.75 TAX: .22

TOTAL:

2.97

BC AMT:

\$2.97

BK CARD#: ID: 000801233206

AUTH: 048981

Host reference #:183157 Bat#138

SWIPED

CARD TYPE: VISA

EXPR:XXXX

==>> JRNL#B83157/A CUST # \*1

<<==

THANK YOU LOREN L THOMAS FOR YOUR PATRONAGE

Name: X

I agree to pay above total amount according to card issuer agreement (merchant agreement if credit voucher) Customer Copy

Couna



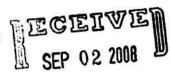
#### Bank of America **Commercial Card** Cardholder Activity

This is Not a Bill 08-27-08 Statement Date Credit Limit \$15,000 Do Not Pay \$0 Cash Limit Days in Billing Cycle 31 Total Activity \$10,367.28

MARLIN MOSER CES ENVIRONMENTAL

Card Account Number:

Accounting Code:



Page 1 of 2

10000-000		######################################	CARDHOLDER ACTIV	TTY	V - 50 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	RZ-9W_LWD-				
	PURCHASING ACTIVITY									
Post Date	Tran Date	Ref. No.	Transactions	мсс	Charge	Credit				
07-28	07-24	24202	CONTRACTION WORKS WITH THE							
07-28	07-25	24761	WHAT FOLL DISCOURTS HONORON TV	2042	701-005					
07-28	07-24	24388	NAME AND ADDRESS OF THE PERSON ADDRESS OF THE PERSON AND ADDRESS OF THE PERSON AND ADDRESS OF THE PERSON ADDRESS OF THE PERSON ADDRESS OF THE PERSON ADDRESS OF THE PERSON ADDRESS OF THE PERSON ADDRESS OF THE PERSON ADDRESS OF THE PERSON ADDRESS OF THE PERSON ADDRESS OF THE PERS	5751	60.32-					
07-28	07-25	24761	MOORE SUPPLY CO. 124 HOUSTON TY	5751	10.90~					
07-28	07-25	24761	MOODE SUPPLY CO. 120 HOUSTON TY	5251	1535					
07-28	07-24	74388	DIXIE HARDWARE PLUMBIN HOUSTON TX	5251		25.96 -				
07-30	07-28	24388	PRIVIE HARDWARD BY FRANKING TOWNS TO	3231	-					
08-04	08-02	24493	TOMMY TOOLS HOUSTON	5361	خانشتها					
08-06	08-05	24493	THE PART OF THE PARTY OF THE PA		- ((100					
08-07	08-06	24224	PARKER LUMBER 3320 PORT ARTHUR TX	5251	91.09					
08-07	08-05	24388	BASIC HARDWARE PLUMBIN HOUSTON TV							
08-07	08-05	24388	DIXIE HADDINATION	32.71						
08-11	08-07	24323	DRAGO SUPPLY COMPANY 409-983-4911 TX	5085	379.58 TOO 1					
08-11	08-07	24695	DERRICK OIL & SUPPLY CO 409-9852508 TX	5085	571.50 - 800					

**Customer Service** 1.888.449.2273, 24 hours

Outside the U.S. 1.509.353.6656, 24 hours

For Lost or Stolen Card: 1.888.449.2273, 24 hours

Send Billing Inquiries to: BANK OF AMERICA PO BOX 15184 WILMINGTON DE 19850-5184

Account Summary \$0.00 Previous Balance Payments \$0.00 Credits \$0.00 Cash \$0.00 Purchases \$10,367.28 Other Debits \$0.00 Overlimit Fees \$0.00 Cash Fees \$0.00 \$0.00 Other Fees **Total Activity** \$10,367.28

Please see the reverse side for information about your account.

#### Commercial Card

Bank of America



Account No. **Total Activity** \$10,367.28

Cardholder Signature

Date

Haallaalllaaadallaallaalallaalallaadallaal

Manager Signature

Date

MARLIN MOSER **CES ENVIRONMENTAL** 4904 GRIGGS RD HOUSTON TX 77021-3208 \*\*P0019369





#### Bank of America Commercial Card Cardholder Activity

Statement Date 08-27-08 This is Not a Bill
Credit Limit \$15,000 Do Not Pay
Cash Limit \$0
Days in Billing Cycle 31 Total Activity \$10,367.28

MARLIN MOSER CES ENVIRONMENTAL

Card Account Number:

Accounting Code:

Page 2 of 2

			CARDHOLDER ACTIVIT	ГУ	See 1 4 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
			PURCHASING ACTIVIT	Ϋ́		
Post Date	Tran Date	Ref. No.	Transactions	MCC	Charge	Credit
8-14	08-13	24445	POL MORPO 4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	5020		
)8-14 )8-15	08-13 08-13	24445 24639	TO THE PROPERTY OF THE PARTY OF		-	
8-18	08-16	24323	COMMISSION OF THE PROPERTY OF	5070	460.60	
8-25	08-22	24692	-LOWES #01151* PORT ARTHUR TX	5200	659.07 -	
8-25	08-23	24692	LOWES #01151* PORT ARTHUR TX	5200	233.63	
8-25	08-22	24445	HUGHES-SUPPLY 9030 BEAUMONT TX	5211	• 209.57	
8-26	08-25	24692 24323	LOWES #01151* PORT ARTHUR TX DRAGO SUPPLY COMPANY PORT ARTHUR TX	5200 5085	123,60	
8-27 8-27	08-26	24323	FASTENAL CO-MO/TO 507-453-8920 MN	5072	<b>♦ 684.01</b> <b>♦ 1,966,91</b>	
10-27	00-20	24200		CHASING A		eo 100 10
			CORPORATE T & E ACTIV		CHVIII	\$8,188.10
Post	Tran	ī	COM OMATE I & E ACTI	7 7		
Date	Date	Ref. No.	Transactions	MCC	Charge	Credit
7-28	07-26	24013	SMOVINI HOUSTON TY	7010	-	
7-31	07-29	24323	STREET OF SECOND IN	6912	هيئيان سيس	
7-31	07-29	24498	TORUS COLOR OF THE STATE OF THE		لقناد	
)8-01 )8-01	07-30 07-31	24761 24493	010101	6042		
8-05	08-03	24755	ACAPIN CO MEXICAN CON L BOOT ADTUMD TY		144	
08-07	08-05	24164	NT .	5014		
8-08	08-06	24323	Arrival: 08-05-08	1	<b>713</b> (43	
98-08	08-06	24427 24323	MCDONAL BIG FROM BODG - STORY	سيخت الأراب		
8-11	08-08	24323	0.00	6914		
8-11	08-09	24323	Arrival: 08-08-08	9310		
08-13 08-18	08-12	24427 24695	PDVOVOG		4	
08-25	08-23	24323	DANDAVIRIO MARA			
08-25	08-22	24695	THE TWALL COMPANY			
8-26	08-25	24323	A LI LOT 14 00			
18-26	08-25	24323	Arrival: 07-13-08	-	MINERAL STATE	
8-26	08-25	24323	Arrival: 07-13-08	1		
8-27	08-25	24323	ACAPIII CO MEXICAN CON L. PORT ARTHUR TY	5012	2417	
			COR	RPORATE T	& E ACTIVITY	\$1,520.62
			FUEL & MAINTENANCE ACT	TIVITY		
ost	Tran	Def N	Thermodeline	lucal	<b></b>	C- 31:
Date	Date	Ref. No.	Transactions	MCC	Charge	Credit
7-29 8-11	07-28 08-08	24717 24427			TOTAL .	
8-14	08-13	24717	TALENS MARINE AND FUEL INLAKE ARTHUR LA	5983	344.13	
8-21	08-20	24717	The state of the s	3703	Q14.13	
8-25	08-21	24164	EXXONMOBIL 45614526 PORT ARTHUR TX		+ 22.7	
8-25	08-21	24164	EXXONMOBIL 45969201 PORT ARTHUR TX	5542	+ 49.00	
)8-25 19-25	08-22 08-23	24224	MURPHY6756ATWALMRT PORT ARTHUR TX	5542	4 60.00	
)8-25 )8-27	08-25	24164 24164	EXXONMOBIL 45614526 PORT ARTHUR TX EXXONMOBIL 45614526 PORT ARTHUR TX	5541 5542	32.70 51.33	
	00 22	1			ENANCE ACTIVI	TV \$450.54
	-38	00	394.14 \1300m Suppl 1136.81 678 Suppl	ي و	5.262.0	29
			2008 18 XXXXXX		- 1 / W : 11 6	

215.73

CES Environante SALES SLIP CUSTOMER COPY TAX

CUSTOMER: RETAIN THIS COPY FOR YOUR RECORDS

#### PIPELINE SUPPLY & SERVICE LP

P.O. BOX 301130 HOUSTON, TX 77230 6969 ARDMORE HOUSTON, TX 77054 tel: 713-747-0090

fax: 713-747-0855

WEEK OF	PAGE NO	SALES ORDER NO	CANCELLATION DATE	CUST NO
85-09	1	92295	12/31/2079	000000009999

## **PACKING SLIP**

SOLD TO CES ENVIROMENTAL SHIP TO WILL CALL marlin's

ORDER DATE PUI	PURCHA	RCHASE ORDER NUMBER SHIP VIA			F.O.B.			TERMS		
08/05/2008	VER	BAL	WILL CA	ALL		SH	IPPING POI	NT	CHARGE C	ARD
BUYER		DATE REQUESTED	LOCATION 8	SALESPERS	ON				TERRITORY	Carlos Messes
		08/05/2008	00001	HOUS	<b></b>				TEXAS	
ITEM NUMBER			DESCRIPTION		QUAN ORDE	TITY	QUANTITY BACK ORD	QUANTITY SHIPPED	UNIT PRICE	EXTENDED
KNP-5B 6		POLLY PIG, STYLE			+ AV	To realize the	w .		14.00	56.0
SUBTO	TAI	STATE		UNTY			T		IOUT TOTAL	
	.00	3.50		0.56	MTA 0.56			FRE	IGHT TOTAL ORD	
ORDER TAKE	EN BY	Y BILL PERKINS YOUR BUSINES	SON SS	0.30	SALES ORDER NO. 92295  DELIVERY TICKET			Received t	Dy:	60.62





#### Parr Instrument Company

**Customer Copy** 

#### 211 - 53rd STREET **MOLINE, ILLINOIS 61265** PHONE (309) 762-7716 FAX (309) 762-9453

Original

Packing List No: 384689

2750

BILL CES ENVIRONMENTAL SERVICES, INC. TO \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Attn: Miles Root

Email: mroot@cesenvironmental.com

SHIP CES ENVIRONMENTAL SERVICES, IN

TO Attn: Miles Root 4904 GRIGGS RD HOUSTON TX 77021 Charge Date
8/13

Email Copy sent to: Fax Copy sent to :

Invoi	e No.	Page	Invoice Date	Customer PO 375689	Wi 14 15 ii	
AR1/	86171	1	08-13-2008	Terms VISA CHARGE	Via UPS Ground	PPD & ADD
Date C	rdered	08-07	7-2008		F.O.B. Moline, Ilinois	9
Ordered	Backorde	red Sh	ipped Item	water at the second	Unit Price	Extension

1 1108 head only lot number 35A

CARD HOLDER MARLIN MOSER PH: 713 676 1460

1 210.00 210.00 REPAIR.01 OXYGEN VESS RECOND. & HYDO. TEST

1 1 YUPS 10.60 10.60 UPS Charges

Goods Freight Sales Tax 210.00 10.60 0.00

REMIT CHECKS TO:

Parr Instrument Company 211 53rd Street Moline, IL 61265

REMIT WIRE TRANSFERS TO:

Parr Instrument Company c/o: US Bank

201 West 2nd Street Davenport, IA 52801

ABA No. 073000545 A/C No. 793405259

FEI No. 36-1602910

Total USD

220.60

Purchase	Order Request Form	P.O. Number: Date:	375689 8/5/08
Vendor: Contact: Phone:	PABR INSTRUMENT SHEANA PARADISE 309-762-7716 X	<b>&gt;</b>	
Item #	Description  REPAIR FOR BOMB  CALORIMETER  JEE AMACHED	2	Quantity Cost  / *1 2/0
Submitted B Approved B	19 DLA	y	21000
Internal Expe		Job?	Re-Sale Certificate harge Sales Tax



#### **Bank of America Commercial Card Cardholder Activity**

Cash Limit Days in Billing Cycle

Statement Date

Credit Limit

This is Not a Bill

Do Not Pay

31 Total Activity

08-27-08

\$15,000

\$0

\$9,735.29

RYAN C THOMAS CES ENVIRONMENTAL **Card Account Number:** 

Accounting Code:

Page 1 of 2

			CARDHOLDER ACTIVITY	Y		
			PURCHASING ACTIVITY	7		
Post Date	Tran Date	Ref. No.	Transactions	MCC	Charge	Credit
07-28	07-25	24332	The same of the sa	A STREET, SQUARE, SQUA	MELICAN MARKET	
08-04	07-31	24717	WHOLE THE STATE OF			
08-04	08-01	24692	INT*INTERMEDIA NET 888-379-7729 CARRIED	4816	746.85	
08-05	08-04	24492	USBPHONEWORLD 480-747-5901 AZ 16660	4812	108.90	
08-07	08-07	24692	PCC SALES *#43776599 800-800-0011 NH 14460	5964	842.00	pa-company
08-08	08-06	24717	COMPAND DANGE DANGE TO THE PORT OF THE POR	The same of	Section 2 in such such such such such such such such	. tu
08-08	08-08	24692	PCC SALES *#43776599 800-800-0011 NH 16400	5964	.1,461.09'-	BA - compra
08-11	08-07	24717	EMORILE NO 7645 HOUSTON THE COL	-	4-	PA-Computer
08-11	08-08	24492	-FRY'S ELECTRONICS #34 WEBSTER TX 10000	5732	1,259.54-	
08-11	08-09	24692	INTUIT *QB ENTERPRISE 888-246-8848 CA 147000	5734	1,299.00	
08-13	08-11	24445		5732	243.54-	
08-13	08-12	24692	-CIRCUIT CITY #4249 PORT ARTHUR TX (4000)	4816	7.52	
08-14	08-12	24717	THORU END THE HOLDEN	1010	-	State Address of the Control of the
08-15	08-12	24332	-LATHEM TIME CORPORATION 404-6910400 GA 16700	5999	656.08-0	me clack.

**Customer Service** 1.888.449.2273, 24 hours

Outside the U.S. 1.509.353.6656, 24 hours

For Lost or Stolen Card: 1.888.449.2273, 24 hours

Send Billing Inquiries to: BANK OF AMERICA PO BOX 15184 WILMINGTON DE 19850-5184

Account Summary \$0.00 Previous Balance **Payments** \$0.00 Credits \$0.00 Cash \$0.00 Purchases \$9,735.29 Other Debits \$0.00 Overlimit Fees \$0.00 Cash Fees \$0.00 Other Fees \$0.00 \$9,735.29 Total Activity

Please see the reverse side for information about your account

#### Commercial Card

Bank of America

Account No. **Total Activity** \$9,735.29

Cardholder Signature

Date

Hadlaallaaddadhallaalddaaladdaaladdal RYAN C THOMAS

**CES ENVIRONMENTAL 4904 GRIGGS RD** HOUSTON TX 77021-3208 Manager Signature







#### Bank of America Commercial Card Cardholder Activity

Statement Date	08-27-08	This is No	t a Bill
Credit Limit	\$15,000	Do Not	Pay
Cash Limit	\$0		A
Days in Billing Cycle	31	Total Activity	\$9,735.29

RYAN C THOMAS CES ENVIRONMENTAL

Card Account Number:

Accounting Code:

Page 2 of 2

			CARDHOLDER ACTIV	ITY		
			PURCHASING ACTIVI	TY		
Post Date 08-21	Tran Date 08-20	Ref. No.	Transactions INT*INTERMEDIA NET 800-379-7729 CA 266-300	MCC 4816	Charge	Credit
08-25 08-25 08-27	08-21 08-23 08-25	24717	DMI* DELL SM BUS 800-456-3355 TX II	5045	400.50 12.95	
08-27	08-26	24692	INT*INTERMEDIA NET 800-379-7729 CA	RCHASING A	1.67@	\$9,358.25
			CORPORATE T & E ACT	IVITY		
Post Date 08-07	Tran Date 08-05	Ref. No. 24492	Transactions Original 888020	MCC 3700	Charge 77.94	Credit
			Ć	ORPORATE T	& E ACTIVITY	\$77.04
			FUEL & MAINTENANCE AC	CTIVITY		
Post Date	Tran Date	Ref. No.	Transactions	мсс	Charge	Credit
08-22	08-20	24695	PAYNE & SON TRUCK CORRA SILSBEE TX  (SQ 090 FI	7549	300.00 ENANCE ACTIVIT	Y \$300.00



#### **PAYNE & SONS WRECKER**

24 Hour Towing Service 1310 HWY 327 EAST SILSBEE, TEXAS 77656 (409) 385-3277 Res. 385-2599

# Road Service

8-20-68	TIME / 20 A.M. REQUESTED BY	Uner	~	P.O. NO.				
DDRESS E	nvilonment	a l	2816	10-5	621			
Mouston			STATE	ZIP				
OCATION OF VEHICLE	0 1 0 .							
EAR MAKE MODEL	bu.1+ 378	Red	ODOMETER					
LIC. PLATE NO.	VEHICLE I.D. NO.	2105	REGISTERED	OWNER				
MILEAGE	SERVICE TIME	)	TDLR VS	F Lic.# 35	9VSF			
TOWED	FINISH		TDLR VS			ICE		
ÖÜT	START		- IDLA VOI	F LIG.# UD	10/041	/or		
TOTAL	TOTAL	_ TOTAL			33799C			
REASON FOR TOW  ACCIDENT  ARREST  UNREGISTERED  TOW ZONE  SNOW REMOVAL	STOLEN CAR	FLAT TIRE OUT OF GAS IMPOUNDED PUIL OUT	P.O. Box 12 Austin, TX 1-800-803- www.licens	ng Program 157 78711 9202 e.state.tx.us	s	aints		
TYPE OF TOW		VEHICLE TO	Towing@lic	ense.state.	bx.us			
☐ SLING/HOIST TOW		IRST TOW	1	-/				
FLAT BED/RAMP	LOCAL POLICE	SECOND TOW	//	<i>-</i>				
WHEEL LIFT	DEALER	/						
STORAGE FROM	<del>1 1</del>		TOWING CH	ARGE				
	DAYS • \$		MILEAGE CH			_		
PAID BY	~, -, -, -, -, -, -, -, -, -, -, -, -, -,		EXTRA PE	RSON				
☐ CASH ☐ CHECK	DRIVER'S LIC. NO.	<u>}</u>	1 1 59	ECIAL				
	f1	1/ /EQUIP	MENT					
☐ CREDIT CARD ☐ MC	☐ VISA ☐ AMEX DATE		V was	Home				
☐ CREDIT CARD ☐ MC	O A C	[	LABOR CH	ARGE	A			
cc No. <u>029</u>	909		A STO	ARGE	B			
CC NO	909 419		CABON CH	ARGE!	By			
CC NO	909		SUB-	9	d d	3		
CC NO. 029 PERATOR'S SIGNATURE RUCK NO. 7 840	909	20/08	C sta	9	Ø.	,		
CC NO	<b>909</b> 419 DATE	20/08	SUB-	TOTAL	00	8		

Pyan C'C

port Arthr office

NAP



#### Just what I needed."

Circuit City Store, Inc. Store 04249 8725 MEMORIAL BOULEVARD PORT ARTHUR, TX 77640 (409) 727-4566

08/11/2008

10:40:40 AM EDT

08/11/2008 Trans.: 9139

Store: 04249

Res.: 011

Till:011

Cashier: 10426028

Sales: 6028

SALE



N GIGABIT ROUTER

119.99 T

NTGWNR3500100NAS 1 @ 119.99 C

MX-3200 LASER CORDLE

104.99 T

L0G9676880403 1 @ 104.99 C

Sub-Total

224.98

Tax

18.56

Total

243.54

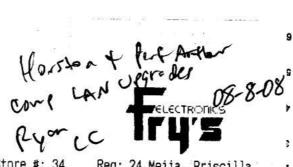
Visa (S)

243.54

Account: 4660 Auth: 062477 (A)

Total Tender

243.54



Store #: 34 Reg: 24 Mejia, Priscilla 21300 Gulf Freeway 127465 Webster, TX 77598

PHN: (281) 338-1762

) 338-1762 FAX:(281) 338-1949

INVOICE#: 2620799 MERCHANT: 172041704997 F3 M2 XXXXXXXXXXXXX4660 VISA THOMAS/RYAN C SALE: \$1,259.54 024532 03000826 5465319 Monster 12' USB 1 @ Monster 12' USB Cable 1 @ 24.99 D2 T 120022 5400489 Netgear GS108T 114.99 Netgear GS10BT 8 Smart D1 T ProSafe 8 Port Gigabit 10/100/1000Mbps Smart Switch 5376888 IOGEAR GPSU21 U 1 @ 49.99 IOGEAR GPSU21 USB P/S D1 T Wired LAN 10/100 1 Port USB Print Server WIN/VIsta/ MAC/Sun Cmpat 5192506 D-Link DGE-560T 1 @ 49.99 D-Link DGE-560T Giga Exp D1 T PCI-Express Gigabit 10/100/1000Mbps Adapter for PCI Express Slots 3486093 WD1600JBRTL 160

SALES TAX @ 8.25% 95.99
TOTAL DUE 1,259.54

VISA XXXXXXXXXXXXXX4660 1,259.54

TOTAL TENDER 1,259.54
CHANGE DUE 0.00

WD1600JBRTL 160GB 8M BOX

TABLE OF STATE CHAPTER

ITEM COUNT 37

INV#:

908

MITCH



#### Bank of America Commercial Card Cardholder Activity

Credit Limit
Cash Limit
Days in Billing Cycle

Statement Date

08-27-08 \$10,000 This is Not a Bill Do Not Pay

\$5,000

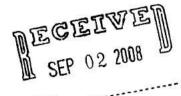
31 Total Activity

\$4,257.79

CLINT HOPKINS CES ENVIRONMENTAL

Card Account Number:

Accounting Code:



Page 1 of 2

			CARDHOLDER ACTIV	/ITY		
			PURCHASING ACTIV	ITY		
Post Date	Tran Date	Ref. No.	Transactions	MCC	Charge	Credit
07-28	07-26	24224	PARKER LUMBER 3320 PORT ARTHUR TX	5251	25	
07-29	07-28	24224	PARKER LUMBER 3320 PORT ARTHUR TX	5251	2 57	
07-31	07-30	24755	COASTAL WELDING SUPPLY INGROVES TX	5085	52 64	
07-31	07-30	24455	WAL-MART #0408 NEDERLAND TX	5411	1 79	
07-31	07-29	24455	WAL-MART #0449 PORT ARTHUR TX	5411	4 54	
08-04	08-01	24692	LOWES #01151* PORT ARTHUR TX	5200	28	
08-07	08-06	24224	PARKER LUMBER 3320 PORT ARTHUR TX	5251	204	
08-07	08-06	24224	PARKER LUMBER 3320 PORT ARTHUR TX	5251	47	
08-08	08-07	24224	PARKER LUMBER 3320 PORT ARTHUR TX	5251	67	
08-08	08-07	24224	PARKER LUMBER 3320 PORT ARTHUR TX	5251	1 14	
08-08	08-07	24455	WAL-MART #0408 NEDERLAND TX	5411	13	
08-11	08-08	24692	LOWES #01151* PORT ARTHUR TX	5200	60	
08-11	08-08	24692	LOWES #01151* PORT ARTHUR TX	5200	3 02	
08-11	08-08	24224	PARKER LUMBER 3320 PORT ARTHUR TX	5251	76	

Customer Service 1.888.449.2273, 24 hours

Outside the U.S. 1.509.353.6656, 24 hours

For Lost or Stolen Card: 1.888.449.2273, 24 hours

Send Billing Inquiries to: BANK OF AMERICA PO BOX 15184 WILMINGTON DE 19850-5184 Account Summary Previous Balance \$0.00 Payments \$0.00 Credits \$0.00 Cash \$0.00 Purchases \$4,257.79 Other Debits \$0.00 Overlimit Fees \$0.00 Cash Fees \$0.00 Other Fees \$0.00 Total Activity \$4,257.79

Please see the reverse side for information about your account.

#### **Commercial Card**

## Bank of America 🧼

Account No. (b) (6)

Total Activity \$4,257.79

Cardholder Signature

Date

Hadhadhaaddalladdalladdladdallad

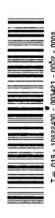
Manager Signature

Date

CLINT HOPKINS CES ENVIRONMENTAL 4904 GRIGGS RD HOUSTON TX 77021-3208 \*\*P0019370







## Bank of America Commercial Card Cardholder Activity

Statement Date · 08-27-08 This is Not a Bill
Credit Limit \$10,000 Do Not Pay
Cash Limit \$5,000
Days in Billing Cycle 31 Total Activity \$4,257.79

CLINT HOPKINS CES ENVIRONMENTAL

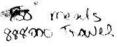
Card Account Number:

(b)(6)

Accounting Code:

Page 2 of 2

			CARDHOLDER ACTIVI	TY		
			PURCHASING ACTIVI	ΓY	V	
ost ate	Tran Date	Ref. No.	Transactions	MCC	Charge '	Credit
3-13	08-11	24323	DRAGO SUPPLY COMPANY PORT ARTHUR TX	5085	30 8	
3-13	08-12	24692	LOWES #01151* PORT ARTHUR TX	5200	389	
3-19	08-16	24755	COASTAL WELDING SUPPLY INGROVES TX	5085	24	
3-20	08-18	24755	JIM SNELL MASTER PLUMBER NEDERLAND TX	1711	20.559	
-20	08-19	24266	FASTENAL CO-MO/TO 507-453-8920 MN	5072	70	
3-26	08-25	24506	GPM PUMP AND SEAL, LLC 281-764-1311 TX	5999	615.94	
			PU	RCHASING A	CTIVITY	\$3,583.6
			CORPORATE T & E ACTI	VITY		
ost	Tran	Def No	Townsellow	MCC	C1	Caratte
ate	Date	Ref. No.	Transactions	7.5542-900-18.10	Charge	Credit
-28	07-24 07-26	24164 24164	JACK IN THE BO00006478 PORT ARTHUR TX	5814 5814		
7-28	07-26	24164	JACK IN THE BO00006478 PORT ARTHUR TX MCDONALD'S F7377 PORT ARTHUR TX	5814		
7-31	07-29	24164	JACK IN THE BO00006478 PORT ARTHUR TX	5814	12	
3-04	07-29	24164	JACK IN THE BO00006478 FORT ARTHUR TX	5814	12	
3-04	08-01	24695	TRACYS SEAFOOD DELI PORT ARTHUR TX	5812	-17	
3-06	08-04	24164	JACK IN THE BO00047159 HOUSTON TX	5814		
3-07	08-05	24164	JACK IN THE BO00006478 PORT ARTHUR TX	5814		
3-07	08-05	24164	JACK IN THE BO00006478 PORT ARTHUR TX	5814	1.6	
3-08	08-07	24323	HAPPY DONUTS PORT ARTHUR TX	5812	31.2	
3-08	08-06	24695	TRACYS SEAFOOD DELI PORT ARTHUR TX	5812		
3-13	08-11	24695	TRACYS SEAFOOD DELI PORT ARTHUR TX	5812	1867	
3-13	08-11	24164	JACK IN THE BO00047159 HOUSTON TX	5814	<b>S</b> 13	
3-18	08-14	24164	JACK IN THE BO00036715 PORT ARTHUR TX	5814	1832	
3-18	08-14	24164	JACK IN THE BO00036681 BAYTOWN TX	5814	23	
3-18	08-16	24695	TRACYS SEAFOOD DELI PORT ARTHUR TX	5812		
3-21	08-19	24695	TRACYS SEAFOOD DELI PORT ARTHUR TX	5812		
1-21	08-19	24164	JACK IN THE BO00047159 HOUSTON TX JACK IN THE BO00036483 BAYTOWN TX	5814	25	
3-25	08-21	24164	2000 T. 10. 500 B. 1500 T. 1500 T. 1500 T. 1500 T. 1500 T. 1500 T. 1500 T. 1500 T. 1500 T. 1500 T. 1500 T. 1500	DRODATE T	& E ACTIVITY	enne er
			FUEL & MAINTENANCE AC		& E ACTIVITY	, contracting the
552 6	T.		POZI W MARTINANCE AC			
ost ate	Tran Date	Ref. No.	Transactions	MCC	Charge	Credit
7-28	07-25	24316	SHELL OIL 57542367503 HOUSTON TX	5542	49.63	
7-28	07-25	24164	EXXONMOBIL 45969201 PORT ARTHUR TX	5541	15.37	
-28	07-26	24164	EXXONMOBIL 45969201 PORT ARTHUR TX	5541	11.64	
1-28	07-26	24164				
1-29	07-28 07-28	24625 24625	7	5547	A STATE OF THE STA	
3-05	08-04	24625	PILOT Baytown TX	5542	52.85 50.18	
1-08	08-06	24164	PACEWAY6778 ST67787 PORT ARTHUR TX		-	
1-11	08-08	24164	RACEWAY6778 69267789 PORT ARTHUR TX	5542	66.81	
3-12	08-11	24625	TEXACO 00303730 HOUSTON TX	5542	47.11	
3-15	08-14	24610	BUC-EE'S #20 Q39 PEARLAND TX	5542	44.52	
3-18	08-16	24427	FISH OR HUNT PT ARTHUR TX	5541	20.00	
3-21	08-20	24610	BUC-EE'S #20 Q39 PEARLAND TX	5542	45.00	
3-26	08-25	24610	BUC-EE'S #20 Q39 PEARLAND TX	5542	47.01	



224.00 450.12 3583.21



GPM Pump and Seal, LT

P.O. No.

PO Box 243 Seabrook, TX 77586



**Invoice** 

Ship Via

Date	Invoice #
8/22/2008	08-8106Z

Bill To

CES Environmental Services, Inc. 4904 Griggs Road Houston, TX 77021

S.O. No.

CES Environmental Services, Inc. 4904 Griggs Road Houston, TX 77021

Terms

Payment Due

(	08-8106	Vbl Jorge 8/22/2008		Credi	t Card	8/22	/2008	GPM - CB	
Line Item	Part Number	Desc	ription	Ordered	B/O	Invoiced	Each	Total	
	00536EP3E184T Shipping & Handling	5Hp, 3600rpm, 184T  Attn: Jorge (fax 713-  Charged to VISA cre	-676-1676) edit card xxxxx9658	2 1	0	2	267.00 35.00	534.00T 35.00T	
Thank yo	ou for your business. Fr s apply.	eight will be PP&A. C	GPM's standard term	is and	Sub	total		\$569.00	
GPM P	emit to: ump and Seal				Sale	8.25%)	\$46.94		
PO Box 243 Seabrook, TX 77586					Total				
Ph (281) 764-1311 Fx (281) 764-1330					Pay	ments/C	redits	<b>\$</b> -615.94	
our Single Source for Your Pump and Seal Solutions.				Balance Due				\$0.00	

Ship Date

#### GPM Pump and Seal, LLC 900 Anders Lane #3 Kemah, TX 77565

#### 08/22/2008

SALE Total: \$615.94

Visa xxxxxxxxxx9658

Exp. Date: xx / xx

Name: CES Environmental Services

Auth. Code: 090727 QuickBooks Trans. No:

Trans. ID: MC0034856857 Merchant No.: 5247710000510446

Thank you for your business

**CUSTOMER COPY** 

## GPW Pumpand Sea

#### GPM Pump and Seal, LLC

900 Anders Lane #3 Kemah, TX 77565 Ph (281) 764-1311 Fx (281) 764-1330

## Packing List and Delivery Receipt

SO Date	S.O. No.
8/25/2008	08-8106

Ship To:	Bill to:
CES Environmental Services, Inc.	CES Environmental Services, Inc.
4904 Griggs Road	4904 Griggs Road
Houston, TX 77021	Houston, TX 77021

Ship Date	P.O. No.	Ship Via	Project	
8/25/2008	Vbl Jorge GPM - CB		100 PM (100 PM	
ine Item F	art Number	Description Orde		Shipped
00536EP3 Shipping &	t Handling  Attr	n: Jorge (fax 713-676-1676)  arged to VISA credit card xxxxx96 es Tax		2 0 0 0 0 0 0 0

Thank you for your business. Freight will be PP&A. GPM's standard terms and conditions apply.

Received in good co	ndition by:	
---------------------	-------------	--

# C. T. V.

#### GPM Pump and Seal, LLC

900 Anders Lane #3 Kemah, TX 77565

Ph (281) 764-1311 Fx (281) 764-1330

## Sales Order / Order Confirmation

Bate	5.Q. No.
8/22/2008	08-1106

Bill to	o: vironmental Services	Inc		CES Environment	al Services, Inc.		
4904 Gr	iggs Road , TX <i>7</i> 7021			4904 Griggs Road Houston, TX 7702			
			Terms	DO No		Proje	
				P.O. No.		Proje	;G
			Credit Card	Vbl Jorge	<del> </del>	<u> </u>	
Itern#	Part Numl 00536EP3E184T	ber	Desci 5Hp, 3600rpm, 184T, W-	ription	Ordered 2	Rate 267.00	Amount 534.00T
	Shipping & Handlin		Attn: Jorge (fax 713-676) From: Charlie Davis Charged to VISA credit of Order confirmation.  Thanks, CD Sales Tax	÷1676)		8.25%	35.00T 46.94
	you for your busines ons apply.	s. Freight v	vill be PP&A. GPM's st	andard terms and	Total		\$615.94

7/24

SPEEDY HART PORT ART TX DEALER # 4596920 07/24/08 11:538H

ACCT/CARD #: VISA XXXXXXX 3.00 AUTH # 004337
INVOICE # HEL0979

TTEH PRICE gty AHT 0002 \$1.59 Ice Small 3.18 PKBUTX 8885 \$2.22 11.19 AQUAFINA 2 0009 \$1.19 18.71 TAX 1.18 CREDIT TOTAL \$26,17

I will pay the total according to the terms of agreement with the card issuer.

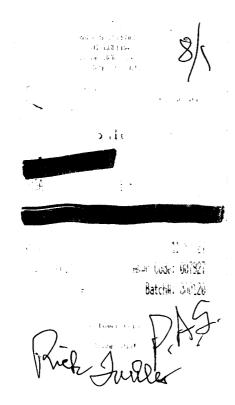
SIGM x\_

CUSTOMER KEEPS BOTTOM COPY

SHIFT 002992

3801 TWIN CITY HWY PORT ARTHUR TX 77649 TERMINAL I.D.: MERCHANT #: 00039 UISA ITEM #: 010 \*\*\*\*\*\*\*\*\*\*5853 SWIPE PRE-SALE DATE: AUG 12, /2008 TIME: 20:16 AUTH NO: 085169 BASE TIP TOTAL GRATUITY GUIDELINE
15%=\$4.54 20%=\$6.05 LAXENT

> I AGREE TO PAY AROVE TOTAL AMOUNT ACCORDING TO CARD ISSUER AGREEMENT (MERCHANT AGREEMENT IF CREDIT VOUCHER)



42427 497884 WHATABL GER #562 4800 TWI CITY HWY GROVES, TX 77619 409 9 3 2623

JULY 30, 008 07:22P

Mercha t No. : 81 0 300003457244 001

Tran 1 Pe : CRE IT SALE Batch # : 212 01

Rufere ce N : 015 Approval : 017529 Purch nd : C

I F REE TO PAY F O'VE TOTAL AMOUNT ACC RDING TO CAR (SSUER AGREEMENT (MERC ANT AGREEMEN (F CREDIT VOUCHER)

JUSTOMER COPY

PiAS. 1/24

\*\*\*\*\*\*\*\*\* FC RCol #3 PF! ... #Y\*\*\*\*\*\*\*

Your dide: # - GO + + + + + + F GO + + + + + + F H

Store #5094 33<mark>01 Twin City Highwa</mark>y Port Arthan, TX

Store: 5094 BURGER KING

theck: OG 15 07/24/08 7:19PM

Survey - 000627 (ANULL)

UIV 11114 -07PRICE\_SUBTOTE 1 TEXAS DB CMB 7.75 1 MED 当BBB SHAKE 1 TERMS OF WHOP UNION xP1CKLF MLD FRY Ì STEAKHSE CMB 7.35 STEAKHOUSE MEU STRAW CHAKE MED FRY 1

> Sub Total = 17.30 Discount = -2.20 Ad) Total - 15.10 Tax > 1.20 CRAND 107AL +

Louiso Savings

2.20

Credit Card - Hi.35

Card Name : IDITUS/RICE

Account : VI/XXXXXXXXXXXX5858 🏺

Approval : 91593) Bank Seq : 0000 Ref : 74

Change -

0.00

@0: by 00062/TANGUTA THANK YOU PLEASE VISIT US AGAIN Phone (409) 962-5711 When some 17/29

Soils 17/29

DAG



LOWE'S HOME CENTERS, INC. 8383 MEMORIAL BLUD PORT ARTHUR, TX 77640 (409) 729-8851 -SALE-



SALES #: S1151NH1 1316227

SALES	#:	S1151NH1	1316227	07-29-08

98761	12 OZ SUNRISE RED STOPS R 2 9 3.97	7.94
98576	12 02 SAIL BLUE STOPS RUS 2 @ 3.97	7.94
244350	12 OZ ORANGE GLOSS SPRAY 2 & 3.97	7.94
72863	1-1/4"PUC TYPE LB CONDUIT	4.54
145145	8X8X4 PUC JUNCTION BOX	21.44
63303	HEX NUTS 3/8 -	0.96
	12 @ 0.08	
59187	1/4 X 3/4 #3PT HEX WSHERH 4 0 4.92	19.68
59188	1/4 X 1 #3PT HEX WASHER H 2 @ 4.92	9.64
2769	1/4 X 1-1/4 FENDER WASHER 3 @ 7.97	23.91
2311	3/16 X 1-1/4 FENDER WASHE 2 @ 7.97	15.94
14277	3/8X1 1/2 FENDER WASHERS	7.56
	3/4"PUC TYPE LB CONDUIT B	10.64
	4 9 2.66	
44603	3/8"-16-6" ALL THREAD PLA 2 9 4.93	9.86
72862	1"PUC TYPE LB CONDUIT BOD 2 9 3.26	6.52
28193	PROFESSIONAL PUC PIPE CUT	29.96
	SUBTOTAL:	184.77

INVOICE 09854 TOTAL: 200.01 BALANCE DUE: 200.01 VISA: 200.01

VISA XXXXXXXXXXX5858

080235

15.24

AMOUNT:

200.01

TAX:

1151 TERMINAL: 09 07/29/08 07:49:44

# OF ITEMS PURCHASED: 41 EXCLUDES FEES, SERVICES AND SPECIAL ORDER ITEMS



THANK YOU FOR SHOPPING LOWE'S

RECEIPT REQUIRED FOR CASH REFUND. CHECK PURCHASE REFUNDS REQUIRE 15 DAY WAIT PERIOD FOR CASH BACK. STORE MGR: KHALID BOKHARI

WE HAVE THE LOWEST PRICES, GUARANTEED! IF YOU FIND A LOVER PRICE, WE WILL BEAT IT BY 10%. SEE STORE FOR DETAILS



LOWE'S HOME CENTERS, INC. 8383 MEMORIAL BLUD PORT ARTHUR, TX 77640 (409)723-8851 -SALE-

SALES #: \$1151AA1 1197305 07-30-08

	450,700
145145 8X8X4 PUC JUNCTION BOX	42.88
2 @ 21.44	
10030 6X6X4 PVC JUNCTION BOX	11.18
91134 3/8"X100'WHITE TWISTED PO	11.97
19453 GENERAL PURPOSE TAPE 1 UN	2.07
3 3 0.69	
51061 1"SCH 40 45 DEG BELLED EL	0.89
51061 1"SCH 40 45 DEG BELLED EL	0.89
51076 1" SCH 40 90 DEG BELLED E	1.07
51076 1" SCH 40 90 DEG BELLED E	2.14
2 0 1.07	
60140 #9 KNOCKOUT BIT UNIBIT	44.97
75464 1 STEEL LOCKNUT 2 BAG	9.44
8 9 1.18	
72856 1"PUC MALE TERMINAL ADAPT	5.40
10 @ 0.54	
72824 1"PUC COUPLING	5.28
11 0 0.48	
72824 1"PUC COUPLING	0.48
SUBTOTAL:	138.66
TAX:	11.44
INVOICE 10211 TOTAL:	150.10

BALANCE DUE: 150.10 150.10 +

> UISA XXXXXXXXXXXX5858 022433

AMOUNT:

150.10

1151 TERMINAL: 10 07/30/08 15:24:19

# OF ITEMS PURCHASED: 43 EXCLUDES FEES, SERVICES AND SPECIAL ORDER ITEMS

FOR SHOPPING LOVE'S

RECEIPT REQUIRED FOR CASH REFUND. CHECK PURCHASE REFUNDS REQUIRE 15 DAY WAIT PERIOD FOR CASH BACK. STORE MGR: KHALID BOKHARI

WE HAVE THE LOVEST PRICES, GUARANTEED! IF YOU FIND A LOWER PRICE, WE WILL BEAT IT BY 10%. SEE STORE FOR DETAILS

.....

Port Arthur #1 (42) 4840 Highway 73
Port Arthur, TX 77642
409-962-0261

Check # :254546

Robert H 12:07:59 07/31/2008 W Transaction #:6371

Card Number

tullos/rick

Amount

**Fotal** 

Auth Code 071531 <u>Vi</u>sa

Tip

Total

Cardmember agrees to pay total in accordance with agreement governing use of such card.

CONTRACTOR AND THE ANALYSIS OF

M. L. Call Med VISA lotal: 热电缆 inv #1 Julian 184 LUGE 1502.12 APPING UNLITE batchill 100122 1 - 12 - 14 - 14 - 14 - 14 Operation 1884

BAYTOWN SEAFOOD 4830 TWIN CITY HWY GROVES, TX 77619

> Terminal #: AUG 07, 08

00000001 9:09 PM

Server ID: 1

VISA SALE BATCh #: 215

REF# F AUTH #:

**\$60.**93

**THUUMA** 

TIP :

TOTAL

**APPROVED** 

CUSTOMER COPY

Point An their #1 (42) 4840 Highway 73 11 Arthur, TX 77642 409-962-0261

Betsy M 12:22 41 06/06/2008 Transaction #:7488

Check # :187913

Carc Number EXELECTION ENGLASSES tal los./nick

Auth Code 005564 Visa

Amount

104.55

Tortial

104.55

Tip

Sant nember ses to pay total in accondance with agreement governing Je∍ of Such Gard.

Allegarity ( . 5

Entr. Method Seized

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(%) (%) Inv in 1668 15

12:10:20 Appr Code. Hillight

Approid Colline

datchii. 加拉为

RICHARDS CAFE
3339 GULLIMAY DRIVE
PORT ARTHUR IX 77642
409-985-4914

BATCH: 152
S-A-L-E-S D-R-A-A-1
90710000007307A

REF: 0002
CO TVPS: UISA
IR TYPE: PURCHASE
08TE: 000 15, 68 11:38:0

AHOUHT \$47.76

TIP

TCTAL
HCC: AP: 027454
HANK: RICK TULLOS
CUST. 0
TAX \$6.90

CARCHERGET ACKALL
AND OR SERSITES IN G. LAND OR J. ALL
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AND OR J. ALLAND CUSTOMER POPY

Jack Quinn Jose Alex bakendrick Rick RICHARDS CAFE 3:39 SHEFWAY DRIVE PURT ARTHUR 1 7647 409-985-4

> BATCH: 151 S-A-L-E-S O-R A F

> > 9071031--

REF: 0003 CD TYPE: UISA TR TYPE: PURCHASE

DATE: AUG 14, US 12:03:45

AMOUNT

\$23.88

EXP: 11

9,00

TIP

TOTAL

ACCI: 585: AP: 002503 NAME: RICK TULLOS CUST. 0

CARDIENER STOCKES IN THE HOUSE HADEOR SERVICES IN THE HOUSE THE OBLIGHTING A STOCK THE CARDIENER'S ASSECTION OF HE

THOUS YOU

CUSTOMER COPY

SPEEDY MART PORT ART TX DEALER # 4596920 08/11/08 08:0900

ACCT/CARU #: VISA XXXXXXX5858 585

AUTH # 083568 IMVOICE # HEL0709

QTY PRICE AHT 11Eh PABUTX 0024 \$0.99 23.76 \$1.59 1.59 8801 los Smail 2.89 TAX TOTAL \$27.44 CREDIT

I will pay the total according to the terms of agreement with the card issuer.

CUSTOMER KEEPS BOTTOM COPY

SHIFT 603029

Catorade @ site

WELCOME TO 6 FASTLANE #18

SHELL 3648 HWY 73 @ 9TH

PORT ARTHUR TX 77642

57 542 116801 S1K0114

	Descr.	qty	amount
		1	
т.	<pre><customer cop="" groc<="" pre="" taxable=""></customer></pre>	γ>	7.16
Ť	FSTLNE ICE	i	1.49
Ť	PK MAJ CIG	1	6.00
		Sub Total	14.65
		Tax	1.21
	TO	TAL	15.86
	10	CREDIT	\$ 15.86

XXXX XXXX X X X X 58 8 VISA FLEET INVOICE: 628206 • AUTH #: 012298

Satorade

Luby's Port Arthur #1 (42) -834. Highway 73 Port Arthur, IX 77642 409-962 0261

OWREEN G 19:55 08 08/ 1/2008 Transaction # 3708

Auth Code 086461 tuilos rick Visa

Total

29 25

Check # :182650

Tip

Total

Denomination series to pay total in accordance with agreement governing use of such care.

#### WELCOME TO WINNIE TEXACO WINNIE FOODMART

WINNIE FOODMAR 522 HWY 124 WINNIE TX

	Descr.	<b>dt</b> y	amount
TTTTT	<customer copy=""> HOT DELI DEN 200Z COCA COLA CAN HOT DELI HOT DELI</customer>	1 1 1 1	1.69 1.29 0.69 1.69
1		Aub Total Tax	7.05 0.53 7.58
		OPERTY \$	7.58

XXXXXXXXXXXXXX5858 RICK TULLOS

Striff 00304163 003 Inuff 6321633

Tell us about your shopping experience by logging onto Survey.Texaco.com

Auth# 090561



E/VISAEFLT2

THANKS - COME AGAIN
REG# 0003 CSH# 003 DR# 01 TRAN# 36728
08/04/08 07:16:16 ST# AB123

#### HOWARDS AUTOMOTIVE S 3301 GOLFWAY DR. PORT ARTHURS 177 7764

BATCH: 128 S-A-L-E-S D-R-A-F-1 73244822 728843431888

REF: 8818 CD TYPE: UISA TR TYPE: PURCHASE DATE: AUG 84, 88 13:32:84

TOTAL \$63.49

ACCT: 5858 EXP: \$4/48
AP: 868643
HANE: RICK TULLOS
CUST.
TAX \$8.00

CARDMEMBER ACKNOWLEDGES RECEIPT OF GOODS
AND/OR SERVICES IN THE AMOUNT OF THE

CARDMEMBER ACKNOWLEDGES RECEIPT OF GOODS AND/OR SERVICES IN THE ANDUNT OF THE TOTAL SHOWN MERCHAND AGREES TO PERFORM THE GELICATIONS SET FORTH BY THE CARDMEMBER'S AGREEMENT WITH THE ISSUER

THANKS FOR USING VISA

CUSTOMER COPY

## JACK IN THE BOX

EAT IN # 475

Tel (409) 722-3022 JIB# 3671 08/07/2008 12:22:03 PM shaunta 1 Jumbo + FF (#8) 3.97 Pls SM Fry Med Coke 1 (2) Tacos 0.99 1 Bacn Ult +MD FF (#6) 6.38 Pls Mayo Sauce Pls Lettuce Pls Tomato Ex Pickle

Med Coke

You're Invited...

Complete our Voice of the Guest survey for a chance to

Sub Med Sea

win \$10,000! Call 1-800-728-1593

Your code: 5163 1508 4007 1575
Please provide feedback within 72 hours.

(No purchase necessary. Sée store for details.) Complete nuestra encuesta "La Voz del Invitado" iTendra una oportunidad

de ganar \$10,000! Llame al 1-800-728-1593

Su codigo es: 5163 1508 4007 1575

Por favor responda dentro de las proximas 72 horas.

(No es necesario comprar. Vea los detalles en la tienda.)

SubTotal 11.34
Tax 0.94
Total 12.28
Visa 12.28

Thank you for your visit

Authorization: 047275

401575

JAK01

#### ALL GOODS RETURNED MUST BE ACCOMPANIED BY THIS INVOICE

Howard's Auto Supply 3301 Gulfway Drive www.howardsauto.com Fort Arthur TX 77642 Phone: (409) 982-9478

WE MAKE HYDRAULIC HOSES FROM 1/4 TO 1 INCH. ALSO A/C AND FOWER STEERING HOSES. VISIT WWW.HOWARDSAUTO.COM

Usersen

·63:311 1	Jecor	.u i c.			Cust:	0		CASH INVOICE:374537		
					Edou			08/04	/2008 1	n 29Ft
UANTITY	LINE	PART	NUMBER	DESCRIF	TION	CORE	LIST EA.	YOUR COST	EXTENSION	TAX
13	WEES	RS100		TUFF SKIN	I EULE		1.25	1.25	3.250	
4	WES	E625		(1)			1.25	1.,255	5.000	
	(1)	ROUGH	SERVICE	ELA.E		,			. 1	i.
22	MIS	SL426		TROUBLE L	TGHT.		24.95	24.95	49.90T	
141			Vi,sa	63.	49		a		,	
€			4.7	55 55 5. Tr						
			- 4,							
φ		58,65	2 - 10000		*		58.65	NONTAXABLE	58.65	484 TOTAL TAX

## Bank of America 🧼



Bank of America Commercial Card Cardholder Activity

RICK TULLOS CES ENVIRONMENTAL

Card Account Number:

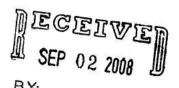
Accounting Code:

 Statement Date
 08-27-08
 This is Not a Bill

 Credit Limit
 \$5,000
 Do Not Pay

 Cash Limit
 \$2,500

 Days in Billing Cycle
 31 Total Activity
 \$4,998.43



Page 1 of 2

			CARDHOLDER ACT	IVITY	
			PURCHASING ACTI	IVITY	
Post Date	Tran Date	Ref. No.	Transactions	MCC Charge	/ Credit
07-30	07-29	24692	LOWES #01151* PORT ARTHUR TX	5200	//
07-31	07-30	24692	LOWES #01151* PORT ARTHUR TX	5200	C .
08-04	08-01	24493	WILDCAT ELECTRIC SUPPLY HOUSTON TX	5065	
08-04	08-01	24158	COMMERCIAL EQUIPMENT SALE713-2378682 TX	5046	
08-06	08-05	24323	→DRAGO SUPPLY COMPANY 409-983-4911 TX	5085	
08-13	08-12	24692	LOWES #01151* PORT ARTHUR TX	5200	
08-15	08-14	24692	LOWES #01151* PORT ARTHUR TX	5200	
08-20	08-19	24692	LOWES #01151* PORT ARTHUR TX	5200	
08-20	08-19	24692	LOWES #01151* PORT ARTHUR TX	5200	
08-20	08-18	24266	FASTENAL CO-MO/TO 507-453-8920 MN	5072	
08-20	08-19	74692	LOWES #01151* PORT ARTHUR TX	5200	20.73
				PURCHASING ACTIVITY	\$3,166.88

Customer Service 1,888,449,2273, 24 hours

Outside the U.S. 1.509.353.6656, 24 hours

For Lost or Stolen Card: 1.888.449.2273, 24 hours

Send Billing Inquiries to: BANK OF AMERICA PO BOX 15184 WILMINGTON DE 19850-5184

The second secon	A CONTRACTOR OF THE PARTY OF TH	
Account Summary		
Previous Balance		\$0.00
Payments		\$0.00
Credits	3=3	\$0.00
Cash	+	\$0.00
Purchases	+	\$4,998.43
Other Debits	+	\$0.00
Overlimit Fees	+	\$0.00
Cash Fees	346	\$0.00
Other Fees	+	\$0.00
Total Activity	=	\$4,998.43

Please see the reverse side for information about your account.

#### **Commercial Card**

Bankof America 🧼

Account No.	(b) (6)
Total Activity	\$4,998.43

Cardholder Signature Date

RICK TULLOS CES ENVIRONMENTAL 4904 GRIGGS RD HOUSTON TX 77021-3208 \*\*P0019367



#### A & B Environmental Services, Inc. 1

**Invoice** 

Houston, TX 77029 (713) 453-6060

10100 East Freeway, Suite 10RECEIVE AUG 1 5 2008 BY:\_

**INVOICE #** DATE 8/12/2008 110345

**BILL TO** 

CES Environmental Services, Inc Attn: Accounts Payable 4904 Griggs Road

Houston, TX 77021

CUSTOMER PROJECT AND NO.

Schneider

Sample: 08/04/08

Dan Carter

Thank

f				<del>-</del>	Γ			
P.O. N	UMBER	TERMS	DUE DATE	DATE REC.	AC	CT. NO.	,	SAMPLE ID NO.
0808-01	/0808-03	Due on receipt	8/12/2008	8/4/2008		08080089.01		080089.0102
QUANTITY	ITEM CODE		DESCRIPTION	V		PRICE E	ACH	AMOUNT
2 2 2	TCLP VOO TCLP Se RCI	TCLP Metals Chromium, Le Mercury TCLP Volatile TCLP Semivo	ead, Selenium s		n,	140 190	0.00 0.00 0.00 5.00	280.00 380.00 190.00
Fire C	lean ut	Suelg						
Thank yo	u for your b	ousiness.				Tota	ıl	\$1,090.00

#### A & B Environmental Services, Inc. '

## **Invoice**

10100 East Freeway, Suite 100 Houston, TX 77029 (713) 453-6060

CES Environmental Services, Inc

Attn: Accounts Payable 4904 Griggs Road

Houston, TX 77021

**BILL TO** 

MECEIVE

DATE	INVOICE #
8/18/2008	110507

3) 433-0000	,	'AUG	21	2008	

BY:-CUSTOMER PROJECT AND NO.

T-3 Cypress - Sump Sludge

Sample: 08/08/08 Gary Brauchman

P.O. N	UMBER	TERMS	DUE DATE	DATE REC.	ACC	CCT. NO. SAMPLE II		SAMPLE ID NO.
080	8-07	Due on receipt	8/18/2008	8/8/2008		08080229.0		08080229.01
QUANTITY	ITEM CODE		DESCRIPTION	V		PRICE EA	АСН	AMOUNT
1	RCI TCLP- 8 TCLP VO	RCI TCLP Metals Chromium, Le Mercury TCLP Volatile TCLP Semivo	ead, Selenium s		n,	120 140	5.00 5.00 5.00 5.00	95.00 120.00 140.00 190.00
					Ē			
Thank you for your business.			Tota	ıl	\$545.00			

#### **Invoice**

#### A & B Environmental Services, Inc.

10100 East Freeway, Suite 100 Houston, TX 77029 (713) 453-6060



DATE	INVOICE #
8/25/2008	110704

BILL TO

CES Environmental Services, Inc Attn: Accounts Payable

4904 Griggs Road Houston, TX 77021 CUSTOMER PROJECT AND NO.

Project # 08-08-11 Hi Temco-Lozano Sample: 08/12/08 Gary Brauchman

P.O. N	UMBER	TERMS	DUE DATE	DATE REC.	AC	ACCT. NO. SAMPLE ID N		SAMPLE ID NO.
080	8-11	Due on receipt	8/25/2008	8/12/2008				08080316.01
QUANTITY	ITEM CODE		DESCRIPTIO	N		PRICE E	ACH	AMOUNT
1	11 TCLP .	11 TCLP Meta Barium, Beryl Lead, Nickel, TPH by Metho	lium, Cadmiui Selenium, Sil	m, Chromium,			0.00	150.00
Thank you for your business.  Total \$2				\$200.00				



10100 East Freeway, Suite 100 Houston, TX 77029 (713) 453-6060

DATE	INVOICE #.
8/28/2008	110842

**BILL TO** 

CES Environmental Services, Inc

Attn: Accounts Payable 4904 Griggs Road Houston, TX 77021 CUSTOMER PROJECT AND NO.

Project #

OYO Geospace - Iodine Waste

Sample: 08/14/08 Gary Brauchman

DO N	LIMBED	TEDMO	DUE DATE	DATE REC.	1	OT NO		
P.O. N	UMBER	TERMS	DUEDATE	DATE REC.	ACC	ACCT. NO. SAMPLE		SAMPLE ID NO.
0808	-0023	Due on receipt	8/28/2008	8/19/2008			(	8080559.01
QUANTITY	ITEM CODE		DESCRIPTION	V		PRICE EA	ACH	AMOUNT
1	TCLP- 8	. TCLP Metals Chromium, Le Mercury RCI			m,	120.00 95.00		95.00
			<i>,</i>					
			<u>/</u>					
Thank yo	u for your b	ousiness.	- <del> </del>			<b>Total</b> \$215.00		

CES ENVIRONMENTAL SERVICES, INC.

41882

A&B Environmental

Date 9/9/2008

Type Bill Reference 110948 Original Amt. 400.00 12/4/2008 Balance Due Discount 400.00

**Check Amount** 

Payment 400.00 400.00

CES Environmental S CES Internal Analysis (Rada Tech) 8/25/08

400.00

565369 (5/08)

#### A & B Environmental Services, Inc.

Invoice

G&b

10100 East Freeway, Suite 100

Houston, TX 77029 (713) 453-6060

PECEIVE SEP 06 2008 DATE INVOICE # 9/2/2008 110948

BILL TO

CES Environmental Services, Inc
Attn: Accounts Payable
4904 Griggs Road
Houston, TX 77021

CUSTOMER PROJECT AND NO.
Project # Sample: 08/25/08 Miles Root

P.O. N	UMBER	TERMS	DUE DATE	DATE REC.	AC	CT. NO.		SAMPLE ID NO.
		Due on receipt	9/2/2008	8/25/2008			08	080767.0102
QUANTITY	ITEM CODE		DESCRIPTION	N		PRICE E	ACH	AMOUNT
1 1 1 1 1 Estesi	RCI TPH-1005 Flash Poin	Barium, Beryll Lead, Nickel, 5 Day Rush RCI	lium, Cadmiui Selenium, Silvod 1005	m, Chromium,		118 62	7.50 3.75 2.50 1.25	118.75 62.50 31.25
Thank yo	RAC!		· · · · · · · · · · · · · · · · · · ·					
				**************************************		Tota		\$400.00

EPAHO055000142

CES ENVIRO	ONMENTA	L SERVICES, INC.			41216
A One	Chemic	als & Equipment, Inc		10/28/2008	
Date	Type	Reference	<ul> <li>Original Amt.</li> </ul>	Balance Due 🦈 Discount	Payment
8/20/2008	Bill	18604	1,965.71	1,965.71	1,965.71
8/21/2008	Bill	18485	3,124.52	3,124.52	3,124.52
ลู/27/2008	Bill	18567	863.30	863.30	863.30
9/1/2008	Bill	18617	2,175.83	2,175.83	2,175.83
				Check Amount	8,129.36

CES Environmental S CES 8,129.36

565369 (5/08)



#### CHEMICALS & EQUIPMENT, INC.

2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

## Invoice

DATE	INVOICE#
8/19/2008	18604

BILL TO	
CES ENVIRONMENTAL 4904 ORIOGS RD. HOUSTON, TEXAS 77021	

SHIP TO	
SAME	
POSTED	

P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
375807	Net 30	BCD	8/19/2008	CO. TRUCK	HOUSTON	
QTY	PRODUCT#		DESCRIPTI	ON	PRICE EACH	AMOUNT
6	GAL-101 A-3026 HANDLES	EMULSIFIER) GREEN CHEN HANDLE 72 Sales Tax	*101*CONCE (HI	<b>!</b>	6.45 18.95 14.95 8.25%	113. <b>70</b> ′ 89.70°
		M	Upp			

PLEASE REMIT PAYMENT TO: A-ONE CHEMICALS P.O. BOX 63 MARTINSVILLE, TEXAS 75958 Subtotal

\$1,815.90

Total

\$1,965.71

Fax#	E-mail	Web Site
281-542-5002	aonechem@aol.com	www.a-onechemicals.com

A-ONE

CHEMICALS & EQUIPMENT, INC

2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000 **2** 1 2008 **BY**:

## Invoice

DATE	INVOICE#
7/31/2008	18483

BILL TO

CES ENVIRONMENTAL 4904 GRIGGS RD. HOUSTON, TEXAS 77021

SHIPT	0
SAME	
	POSTED
	AUG 2 1 2009

P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
	Net 30	BCD	7/31/2008	CO. TRUCK	HOUSTON	
QTY	PRODUCT#		DESCRIPTI	ION	PRICE EACH	AMOUNT
<u> </u>	SODIUM HYDR (X) HAZARDOUS	EMERGENCY Sales Tax		rion, 8, un#1824		2,886.40T 0.00T 238.12
			MLI.	mz.		

PLEASE REMIT PAYMENT TO: A-ONE CHEMICALS P.O. BOX 63 MARTINSVILLE, TEXAS 75958 Subtotal

\$2,886.40

Total

\$3,124.52

Fax #	<b>6-mai</b>	Web Site
281-542-5002	aonacham@aol.com	www.s-onechemicals.com

# A-ONE

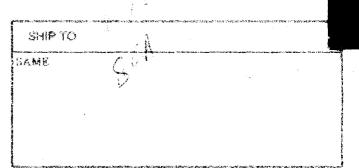
#### CHEMICALS & EQUIPMENT, INC.

2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

## Invoice

DATE	INVOICE#
7/31/2008	18485





P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
karraminin a sakaburi di Propin kan perdukunya Ki Armandakan Ki Aslandakan di Aslandaran da sakaburi da sakabu	Net 30	вср	7/31/2008	CO. TRUCK	ноизтон	uningsteht Piller Schrissbarer (eine Rechtsprichtehtende sebende und eine erzeiten Einer von
Ca TV	PRODUCT #	TAMILI YASI ONUM-ERALE ORUSUN MEMBERNAMAN KASISI AMBAR	DESCRIPTI	ON	PRICE EACH	AMOUNT
7,040	SODIUM HYDR (X) HAZARIOUS	CODIUM HYDROXIDE SOLUTION, 8, UN#1824 EMERCIENCY: (800) 424-9300  COLS  OSP		3 25%	2,886.401 0.001 238.12	
		Milling			26	

PLEASE REMIT PAYMENT TO:

A-ONE CHEMICALS
P.O. BOX 63

MARTINEVILLE, TEXAS 75958

Subtotal

\$2,886.40

Total

\$3,124.53

Fax#	É-mall	Web Site
281-542-5002	aouechem@aol.com	www.a-onechemicals.com

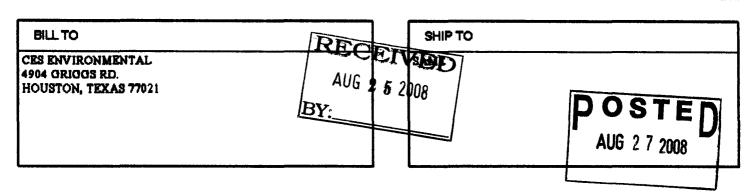


#### CHEMICALS & EQUIPMENT, INC.

2902 EAST "X" STREET • DEER PARK, TX 77536. • (281) 542-5000

## Invoice

DATE	INVOICE#
8/13/2008	18567



P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
	Net 30	BCD	8/13/2008	CO. TRUCK	ноизтом	
QTY	PRODUCT#		DESCRIPT	ION	PRICE EACH	AMOUNT
55	GAL-777 (X) HAZARDOUS	DYNA-STRIP "777" PRE-SOLVE SOLVENT STRIPPER(COMBUSTIBLE SOLVENTS, N.O.S., 3, UN#1268, PKG.III)(CONTAINS: PETROLEUM DISTILLATES) EMERGENCY: (800) 424-9300 Sales Tax		14.50 INS: 8.25%	<b>797.50T</b> 0.00T 65.80	
			le18	•		
			Cigal Jan	W		

PLEASE REMIT PAYMENT TO: A-ONE CHEMICALS P.O. BOX 63 MARTINSVILLE, TEXAS 75958 Subtotal

\$797.50

Total

\$863.30

Fax#	E-mail	Web Site	
281-542-5002	sonechem@sol.com	www.a-onechemicals.com	



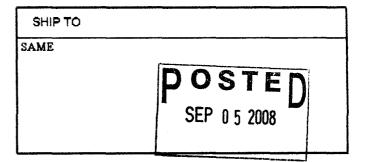
#### CHEMICALS & EQUIPMENT, INC.

2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

## Invoice

DATE	INVOICE#
8/22/2008	18617

BILLTO	
CES ENVIRONMENTAL 4904 GRIGGS RD. HOUSTON, TEXAS <b>77</b> 021	



P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
375859	Net 30	BCD	8/22/2008	CO. TRUCK	DEER PARK	
QTY	PRODUCT#		DESCRIPTI	ON	PRICE EACH	AMOUNT
250	GAL-ALUM II	(X)HARZARE INORGANIC,	II CONC(HD AL OUS (CORROSI N.O.S.,8, UN#326 RIC & SULFURI	ve liquids, aci 34 (contains:	DIC, 4.8	5 1,212.50T
55	GAL-777	DYNA-STRIP STRIPPER(CO SOLVENTS,N	"777" PRE-SOLV MBUSTIBLE .O.S.,3,UN#1268,	•	14.5 INS:	0 797.50T
	(X) HAZARDOUS	PETROLEUM DISTILLATES) EMERGENCY: (800) 424-9300 Sales Tax		8.25	0.00T % 165.83	
			pst	)		
			Vijna (g	) V		

PLEASE REMIT PAYMENT TO: A-ONE CHEMICALS P.O. BOX 63 MARTINSVILLE, TEXAS 75958 **Subtotal** \$2,010.00 **Total** 

Fax#	E-mail	Web Site	
281-542-5002 aonechem@sol.com		www.a-onechemicals.com	

\$2,175.83

Purchase	Order Request Form	P.O. Number:	3758	59
		Date:		
Vendor:	A- ONE CHE	MICAL		
Contact:				
Phone:				
Item #	Description		Quantity	Cost
	777 STRIPPER		556AL	790
	177 STRIPPER BRIGHTNER		200	790 00
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Approved B	gy:		_	
	For Office Use	Only	N	
Internal Exp	ense: Job Exp	ense:		
CS FS		What Job?	·V	
Tran SGA		Give Vendo	Re-Sale Certi	ficate
MRI DRN DSP		Vendor to C	harge Sales Ta	x

41687

Payment

1,853.79

A One Chemicals & Equipment, Inc.

 Date
 Type
 Reference
 Original Amt.
 Balance Due
 Discount

 9/9/2008
 Bill
 18677
 1,853.79
 1,853.79

 10/1/2008
 Bill
 18775
 1,853.79
 1,853.79

.79 1,853.79 Check Amount 3,707.58

11/20/2008

CES Environmental S CES

3,707.58



565369 (5/08)



#### CHEMICALS & EQUIPMENT, INC.

2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

## Invoice

DATE	INVOICE#	
9/2/2008	18677	

BILLTO	
CES ENVIRONMENTAL 4904 GRIGGS RD. HOUSTON, TEXAS 77021	



P.O. NUMBER	TERMS	REP	SHIP	VIA		F.O.B.	PROJECT
	Net 30	BCD	9/2/2008	CO. TRUCK	D	eer park	
QTY	PRODUCT#	DESCRIPTION				PRICE EACH	AMOUNT
250	GAL-101	DYNA-SOLV "101"CONCE (HD RESIN EMULSIFIER)			6.85	1,712.50T	
		Sales Tax				8.25%	141.29
			le19 Osf				
			DSf	)			
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1							
		I /a	ns.	T			

PLEASE REMIT PAYMENT TO: A-ONE CHEMICALS P.O. BOX 63 MARTINSVILLE, TEXAS 75958 **Subtotal** \$1,712.50

Total

Fex#	E-mail	Web Site	
281-542-5002	aonachem@aol.com	www.a-onechemicals.com	

\$1,853.79

## **Purchase Order Request Form** P.O. Number: Date: Vendor: Contact: Phone: Description Item# Quantity Cost Submitted By: Approved By: For Office Use Only Internal Expense: Job Expense: *50%* CS FS What Job? Trans Give Vendor Re-Sale Certificate SGA **MRI** Vendor to Charge Sales Tax

**DRM** 

50% DSP



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000



## Invoice

DATE	INVOICE#		
9129/2008	18775		

BILL TO				OT 9IHE			
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P.O. NUMBER	TERMS	newari saleuru amasaran musarra REP	partir anna a tra antarion de acesa	eriani en araban en en en en en en en en en en en en en		F.O.B.	PROJECT
376196	Net 30	BCD 9/29/2008 CO. TRUCK			ноизтон	der freuglere vinder Latterslagte eine andetsverets vindefinden behand sallsche Flan dem	
OTT	PRODUCT#	and the complete state of the second	DESCRIPTI	ON	***************************************	PRICE EACH	AMOUNT
250	OAL-101	DYNA-SOLV "101" CONCE (HD RESIN EMULSIFIER) Sales Tax  Cherrical Support			P	6.85 Lie S -	1,712.50T 141.29

PLEASE REMIT PAYMENT TO: A-ONE CHEMICALS P.O. BOX 63 MARTINSVILLE, TEXAS 75958 W

Subtotal \$1,712.50

**Total** \$1,853.79

-	Fax #	E-mall	Web Site
Sagarana .	281-542-5007	aonerhem@aol.com	www.a-enechemicals.com

Purchase	Order Request Form		376/96
Venifor: Contact:	A ONE CHEMI	CAL	
Phone:			And the second s
Item #	Description		Quantity Cost
	REA SOAP		£ 25 1500 cm
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Submitted B	Loren Thoma.		·· <u>·</u>
Approved B		nga pakanan na ngapa dawa sa dan sama na 22 a dan angan da maga da	operation.
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SG V MR1 DSP			or Re-Sall, Cortificate Charge Sales Ial,

A One Chemicals & Equipment, Inc.

Date Type Reference 10/1/2008 Bill 18737 10/17/2008 Bill 18852 Original Amt. 1,853.79 863.30 12/23/2008 Balance Due Discount 1,853.79 863.30

Payment 1,853.79 863.30 2 717.09

Check Amount 2,717.09

CES Environmental S CES

2,717.09



565369 (5/08)



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000



## Invoice

DATE	INVOICE#		
10/9/2003	18852		

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CES ENVIRONMENTAL 4904 ORIGOS RD. HOUSTON, TEXAS 77021	MAR

SHIP TO		
SAME	 	

P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
374293	Net 30	BCD	10/9/2008	CO. TRUCK		
QTY	PRODUCT#		DESCRIPTI	ON	PRICE EACH	AMOUNT
55	GAL-777	Stripper(CO Solvents, N		e solvent Pkg.iii)(conta	14.50 .INS:	797.50T
	(X) HAZARDOUS		': (800) 424-9300		8.25%	0.00T 65.80
		le 18 TW	Core Jh	mar '	DOST E 0CT 3 1 200	

PLEASE REMIT PAYMENT TO: A-ONE CHEMICALS P.O. BOX 63 MARTINSVILLE, TEXAS 75958 Subtotal

\$797.50

Total

\$863.30

Fax#	Fax # E-mail	
281-542-5002	sonechem@sol.com	www.a-onechemicals.com



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000



## Invoice

DATE	INVOICE#
10/9/2008	18852

BILL TO	энге то
CES ENVIRONMENTAL. 4904 ORIOUS RD. HOUSTON, TEXAS 77071	JAME
	THE ARM STREET, CASHANIAN AND AND AND AND AND AND AND AND AND A

P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
376293	Net 30	BCD	10/9/2008	co. Truck	(	<del>Pediga ng mat probability di Pediga and Pediga na Pedig</del>
OTY	PRODUCT#	(1994年) (1994年) (1994年) (1994年) (1994年) (1994年) (1994年) (1994年)	DESCRIPTI	ON	PRICE EACH	AMOUNT
55	GAL-777 (X) HAZARDOUS	STRIPPER(CO SOLVENTS, N PETROLEUM	*777* PRE-SOLV DMBUSTIBLE LOS.,3, UN#1 268, DISTILLATES) 7: (800) 424-9300		14.50 INS: 8.25%	797.501 0.001 65.80
		1018 TW	Core sh	mai.		

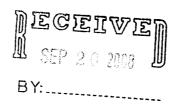
PLEASE REMIT PAYMENT TO: A-ONE CHEMICALS P.O. BOX 63 MARTINSVILLE, TEXAS 75958 Subtotal \$797.50

Total \$863.30

Fax #	Fax# E-mail Web Site	
281-542-5002	sonechem@sol.com	www.a-onechemicals.com

Purchase Order Request Fo	rm P.O. Number:	3740	
	Date:	10.9.	08
Vendor: A. One Che Contact: Bill Phone: 713.444.149			1.
Phone: $713.444.149$	<u> </u>		
Item # Description 111		Quantity	Cost <u>*863</u> .30
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Submitted By: Approved By:	1		
	or Office Use Only		
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SGA MRI		lor Re-Sale C	
DRM	Vendor to	Charge Sales	Tax





## **Invoice**

DATE	INVOICE#	
9/19/2008	18737	

BILL TO	SHIP TO	
CES ENVIRONMENTAL 4904 GRIGGS RD. HOUSTON, TEXAS 77021	SAME	

P.O. NUMBER	TERMS	REP	SHIP	VIA	F	F.O.B.	PROJECT
	Net 30	BCD	9/19/2008				
QTY	PRODUCT#		DESCRIPTI	ON	F	PRICE EACH	AMOUNT
250	GAL-101	Sales Tax		Cast		6.85 8.25%	1,712.50T 141.29
PLEASE REMIT PA		$\Lambda / \Lambda$	Mari		Subtota	al	\$1,712.50
A-ONE CHEM P.O. BOX MARTINSVILLE, 7	K 63	/\anxl	ellow		Total		\$1,853.79

Fax#	E-mail	Web Site
281-542-5002	aonechem@aol.com	www.a-onechemicals.com

CES ENVIRONMENTAL SERVICES, INC. 40922 A One Chemicals & Equipment, Inc. 10/9/2008 Туре Date Reference Original Amt. Balance Due Discount **Payment** 7/29/2008 Bill 18467 3,500.15 3,500.15 3,500.15 8/12/2008 18515 2,608.83 2,608.83 2,608.83 Bill Check Amount 6,108.98

565369 (5/08)

CES Environmental S

6,108.98



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

281-542-5002

## Invoice

DATE	INVOICE#		
7/29/2008	18467		

P.O. BOX 63	AB 75958		homa		<b>lotal</b>	\$3,500.15
PLEASE REMIT PAYS A-ONE CHEMIC		Ln.	ر سهو	•	<b>Nubtotal</b>	\$3,233.40
	NDLES		nch <b>W</b> ist <b>er</b> l 1	(8)	14.95	89.70
	HAZARDOUS LL-101	BODIUM HYDROKIDE BOLUTION, 8, UN61824 EMERGENCY: (860) 424-9366 DYNA-BOLV "101"CONCE (HD RESIN EMULEIPIER) Drum Pamp Super Duty 7GPM			6.26 6.43 30.30	1,406.001 0.001 1,612.501 123.201
QTY	PRODUCT®	v	DESCRIPTI	ON	PRICE EACH	AMOUNT
375585	Not 30	BCD	7/29/2008	CO. TRUCK	HOUSTON	
P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

## Invoice

DATE	INVOICE #
> 4/36/3008	18467

BILL	овования при при при при при при при при при при
CE3 EN	VIRONMENTAL
4904 O	RIGGS RD.
HOUST	ON, TEXAS 77021

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		1,500			
		,			

P.O. NUMBER	TERMS	REP	SHIP	VIA	/IA F.O.B. PROJ	
375585	Net 30	8CD	7/29/2008	CO. TRUCK	HOUSTON	эд соосиятында и центог у дох торого, экон онингиятын адагар адагар бай он онингия
Carry	PRODUCT#	PARTIES (MAIN HOUSE) BUTTLESS - MOCHEL RESPONSIBLE	DESCRIPTI	PRICE EACH	AMOUNT	
250		EMEROENCY DYNA-SOLV EMULSIFIER) Down Pump So	DROXIDE BOLUT ( (800) 424-9300 "TOT CONCE (H) WET Daily TOPM (MCH WISTEEL T	/ 0 20 6 45 30 80 14 95 8.25%	1,408 00T - 0,00T - 1,612 50T - 123 20T - 89 70T - 206 75	

PLEASE REMIT PAYMENT TO: A-ONE CHEMICALS P.O. BOX 63 MARTINSVILLE, TEXAS 75938

Shoma

Subtotal \$3,233.48

Total \$2,500.15

Fax #	E-mail	Web Site
281-542-5002	sonechem@aol.com	www.a-onechemicals.com

	Of del 10	duest routif	P.O. Number:_	3/35	<u>85</u>
)	Vendor:	A. one -	Date: 7-	29.08	
	Phone:				
N - N	Item #	Description		Quantity	Cost S
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DSP -		DYNA - SOLV	101	250611	2560°
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		DRUM PUMPS		4	123 20
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2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

## Invoice

DATE	INVOICE#
8/6/2008	18515

BILLTO	
CES ENVIRONMENTAL 4904 GRIGGS RD. HOUSTON, TEXAS 77021	

SHIP TO	
BAME	Chemical Cost
(O 8	OSP

P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
375683	Net 30	BCD	8/6/2008	CO. TRUCK	HOUSTON	
QTY	PRODUCT#		DESCRIPTI	ON	PRICE EACH	AMOUNT
250	GAL-101	DYNA-SOLV EMULSIFIER)	*101*CONCE (H	D RESIN	6.45	1,612.50T
55	GAL-777		"777" PRE-SOLV	e solvent	14.50	7 <del>9</del> 7.50T
		SOLVENTS, N		PKG.III)(CONTA	N8:	
	(X) HAZARDOUS		: (800) 424-9300		8.259	0.00T
		SW42 LEX			0.237	198.63
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			40	Children of the Control of the Contr		

PLEASE REMIT PAYMENT TO: A-ONE CHEMICALS P.O. BOX 63 MARTINSVILLE, TEXAS 75958 Purhad Olson

**Subtotal** \$2,410.00 **Total** \$2,608.83

Fax #	S-meli	Web Site
281-542-5002	sonethem@sol.com	www.a-onechamicals.com



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

## Invoice

DATE	INVOICE #
3/6/2003	18515

BILL 10	т. В странического бъзгания негоставляния доступности на стоит странического доступности.
CES ENVIRONMENTAL 4904 GRIGGS RD HOUSTON, TEXAS 77021	

SHIP TO

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P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
375683	Het 30	9CD	8/0/2003	CO. TRUCK	Housron	kiryayinin hali namalan silan silah naggada Alam salikurshilabi hali ya mafinangani.
Child.	PRODUCT#	* A specific property of the specific probability is not represented to the probability of the specific probabi	DESCRIPT	CN	PRICE EACH	AMOUNT
	GAL-101	EMULSIFIER DYNA-STRIP STRIPPER(CC SOLVENTS, N	*7731/PRE-SOLV MRUSTIBLE -0 S.3,UN#1268		6.45 	1,612.507
	(X) HAZARDOUS		DIST <b>(LLATE</b> S) * (80 <b>0)</b> 424-930(	)	8.25%	0.003 198.83
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		THE CONTRACT OF THE CONTRACT O				N.
		Transformation and the communications of the		Clizics		

PLEASE REMIT PAYMENT TO: A-ONE CHEMICALS P.O. BOX 63 MARTHSVILLE, TEXAS 75958 , die 1 Min

Subtotal

\$2,410.00

Total

\$2,503.83

Fig. 4	E-mail	Web Site
281-542-5002	aonechem@aol.com	www.a-onechemicals.com

## Order Request Form P.O. Number: 375683 Date: 8-5-08 A ONE CHEMICAL Contact: Phone: Description Item # Quantity Cost \$ DYNA - SOLV. 777 STRIPPER 55GAL Office Use Only Internal Expense: Job Expense:

endor Re-Sale Certificat

☐ Vendor to Charge Sales Fax

CES Environmental S

10,548.75



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

## Invoice

DATE	INVOICE#
4/29/2008	17994

BILL TO				SHIP TO			
CES ENVIRONMEN 4904 GRIGGS RD. HOUSTON, TEXAS				SAME			
P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT	
374835	Net 30	BCD	4/29/2008	CO. TRK.	Houston		
<b>QT</b> Y	PRODUCT#		DESCRIPTI	ION	PRICE EACH	AMOUNT	
6	GAL-101 PUR-756	EMULSIFIER Kurly Kates (c Sales Tax	*101*CONCE (HI	D RESIN	5.9: 130.4( 8.25?	782.40T	
PLEASE REMIT PA					Subtotal	\$2,269.90	
P.O. BO	A-ONE CHEMICALS P.O. BOX 63 MARTINSVILLE, TEXAS 75958				Total	<b>\$2,457.17</b>	
	Fax#		E-mail		Web Site		
	281-542-5	002	sonechem@sol.	.com	om www.a-onechemicals.com		

# Order Request Form P.O. Number: 374835 Date: 4-29-08 Vendor: A one Chemica Contact: Phone: Description Item# Quantity Cost \$ Submitted By: Approved By: Loran

Office Use Only

				_	
Internal Expen	se:	Job E	xpense:		
CS		Wh	at Job?		
FS Trans					
SGA			C. Carrier	or Re-Sale Ce Charge Sales	
DRM	100 H	**************************************			



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

## Invoice

DATE	INVOICE#
4/25/2008	17980

BILLTO	SHIP TO
CES ENVIRONMENTAL 1904 GRIGGS RD. HOUSTON, TEXAS 77021	SAME

P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
374835	Net 30	BCD	4/25/2008	CO. TRK.	Deer Park	
QTY	PRODUCT#		DESCRIPTION PRICE EACH AMOU			
,	102154 463680K PUR-756	rpm, 24 mm S	haft with new 3 gr  psi,10.5gpm,195  , 1/2" bypass	pm/5,000 psi, 185 vove belts F.,3/8" MPT inlet		173.38T 782.40T
170 ASSET 2107.03			POSTFE			
JW"		Bax	ajao No	pelic _		

PLEASE REMIT PAYMENT TO: A-ONE CHEMICALS P.O. BOX 63 MARTINSVILLE, TEXAS 75958

**Subtotal** \$2,729.40 Total

	Fax#	E-mail	Web Site
281-542-5002 sone		sonechem@sol.com	www.a-onechemicals.com

\$2,954.57



## **SERVICE & MAINTENANCE REPAIR ORDER**

## CHEMICALS & EQUIPMENT, INC.

2902 EAST "X" STREET • DEER PARK, TX 77536 (281) 542-5000 • Fax (281) 542-5002 Toll Free (877) 644-1492 • appechem@aol

DATE COMPANY NAME CONTACT TELEPHONE E-MAIL CONTACT TELEPHONE E-MAIL CONTACT TELEPHONE E-MAIL CONTACT TELEPHONE E-MAIL CONTACT TELEPHONE E-MAIL CONTACT TYPE OF UNIT POWER  OUT OUT OF THE MINISTRICE EACH TOTAL  I R 3 V X 4 TO 3 CONTACT TYPE OF CHEMICAL PUMP SPECIAL NOTES  I R 3 V X 4 TO 3 CONTACT TOTAL  I R 3 V X 4 TO 3 CONTACT TOTAL  I R 3 V X 4 TO 3 CONTACT TOTAL  I R 3 V X 4 TO 3 CONTACT TOTAL  I R 3 V X 4 TO 3 CONTACT TOTAL  I R 3 V X 4 TO 4 TOTAL  I R 4 V X 4 TO 4 TOTAL  I R 5 V X 4 TOTAL  I R 5 V X 4 TO 4 TOTAL  I R 5 V X 4 TO 4 TOTAL  I R 5 V X 4		ree (8//) 644-1492	• aonechem@aol.com						
CUSTOMER  ADDRESS OF LOCATION  STATE & ZIP  TYPE OF UNIT  POWER  SPECIAL NOTES  TOTAL  NOTE OF SPECIAL NOTES  POWER  AMAKE OF PUMP & MOTOR  TYPE OF CHEMICAL PUMP  SPECIAL NOTES  UNIT PRICE EACH  TOTAL  NOTE OF SPECIAL NOTES  NOTE OF SPECIAL NOTES  NOTE OF SPECIAL NOTES  NOTE OF SPECIAL NOTES  NOTE OF SPECIAL NOTES  STATE & ZIP  TYPE OF UNIT  POWER  STATE & ZIP  TYPE OF UNIT  POWER  SPECIAL NOTES  NOTE OF SPECI	DATE		COMPANY NAME		CONTAC	TELEPHONE		E-MAIL	
CUSTOMER  ADDRESS OF LOCATION  STATE & ZIP  TYPE OF UNIT  POWER  SPECIAL NOTES  TOTAL  NOTE OF SPECIAL NOTES  POWER  AMAKE OF PUMP & MOTOR  TYPE OF CHEMICAL PUMP  SPECIAL NOTES  UNIT PRICE EACH  TOTAL  NOTE OF SPECIAL NOTES  NOTE OF SPECIAL NOTES  NOTE OF SPECIAL NOTES  NOTE OF SPECIAL NOTES  NOTE OF SPECIAL NOTES  STATE & ZIP  TYPE OF UNIT  POWER  STATE & ZIP  TYPE OF UNIT  POWER  SPECIAL NOTES  NOTE OF SPECI	ala bili Ou	284							
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DESCRIPTION OF REPAIR & MAINTENANCE PERFORMED  DESCRIPTION OF REPAIR & MAINTENANCE PERFORMED  DESCRIPTION OF REPAIR & MAINTENANCE PERFORMED  TAX  TAX  CUSTOMER  SPECIAL NOTES  SPECIAL NOTES  SPECIAL NOTES  SPECIAL NOTES  SPECIAL NOTES  SPECIAL NOTES  TOTAL  TOTAL  TOTAL  TOTAL  TOTAL  TOTAL  TOTAL  TOTAL  TOTAL  TOTAL  TOTAL  TOTAL  TOTAL  TOTAL  CUSTOMER SIGNATURE  TOTAL  TOTAL  TOTAL  TOTAL  CUSTOMER SIGNATURE		£							
QUANTITY PART NUMBER DESCRIPTION OF ITEM UNIT PRICE EACH TOTAL    R 3 V X 9 CO   Description   Descr	15	MAKE OF BUMB	9 MOTOD		TYPE OF CHEMIC	AL DU	INAID T	- cr	DECIAL NOTES
DESCRIPTION OF REPAIR & MAINTENANCE PERFORMED  J. J. J. J. J. J. J. J. J. J. J. J. J. J		MAKE OF PUMP	& MOTOR		TYPE OF CHEMIC	AL PU	IMP	21	PECIAL NOTES
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HOURS @ \$ LABOR CHARGES  SERVICE CALL  SUBTOTAL  TAX  CUSTOMER SIGNATURE	DESCRIPT	ION OF REPAIR &	MAINTENANCE PERFORI	MED			BTOTAL OF PAR	RTS\$	
CUSTOMER SIGNATURE		#			RA HOURS @ \$	TE	LABOR CHARG	SES	
CUSTOMER SIGNATURE		MOICE "					SERVICE C	ALL.	
CUSTOMER SIGNATURE	استماس	1-000	)	ŀ					
CUSTOMER SIGNATURE 1/21/		1 1900		<u>.</u>					<u> </u>
CUSTOMER SIGNATURE 1/21/				-	$-\left( -\right) -$		2-		
					CHOTOMES CLOVATIL		TOT	AL	
DATE COMPLETED // //				1	CUSTOWER SIGNATU	/KE	1124/	9	
					DATE COMPLETE	D	<u> </u>	1.7 ·	



DR 5/27/28

SHIP TO

## Invoice

CHEMICALS & EQUIPMENT, INC.

BILL TO

2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

DATE	INVOICE#
5/27/2008	18120

es environmen 904 griggs RD. Iouston, Texas		086	i, D	SAME			
P.O. NUMBER	TERMS	REP	SHIP	VIA	T	F.O.B.	PROJECT
375057	Net 30	BCD	5/27/2008	CO. TRUCK	1	Houston	
QTY	PRODUCT#		DESCRIPT	ION		PRICE EACH	AMOUNT
250	GAL-101	DYNA-SOLV EMULSIFIER	"101"CONCE (H	D RESIN		5.95	1,487.50T
250	gal fleet wa	FLEET WASI	y H II CONC.(HD LI //DEUREASER)	IQUID		3.45	862.50T
250	gal-alum II	DYNA-BRITI (X)HARZARI INORGANIC	e ii conc(hd ai dous (corrosi , n.o.s.,s,un#32	ve liquids, ac 64 (contains:	IDIC,	3.95	987.SOT
7,040	SODIUM HYDR (X) HAZARDOUS	SODIUM HY	uric & Sulfuri Droxide Solu Y: (800) 424-9300	Tion, 8, Un#182	4	0.20 8.25%	1,408.00T 0.00T 391.51
Please remit p A-one che			()		Sub	total	84,745.50
P.O. BOI MARTINSVILLE, '	K 63	$-$ / $\alpha$	w G		Tot	ai	\$5,137.01
	Fax#		<b>6</b> -mail			Web Site	
	281-542-5002 sonepham		son echem@sol	.com	ww	w.a-onechemicals.com	n

Order Request Form Date: 5- 23-08 Vendor: A - ONE - CHEMICAL Contact: Phone: Description Item # Quantity Cost \$ CAUSTIC 50% 2 1015 1 TOTE 1 TOTE 1 TOTE Submitted By: Approved By: Office Use Only Job Expense: Internal Expense: Olasaes) What Job? FS Trans Vendor Re-Sale Certificat ☐ Vendor to Charge Sales

CES ENVIRONMENTAL SERVICES, INC.

39441

A One	. Chemic	als & Equipment, Inc.			8/6/2008	
Date	Type	Reference	<ul> <li>Original Amt.</li> </ul>	Balance Due	Discount	Payment
5/20/2008	Bill	18073	1,926.36	1,926.36		1,926.36
5/21/2008	Bill	18060	2,645.27	2,645.27		2,645.27
				Che	ck Amount	4,571.63

CES Environmental S CES

4,571.63



560632 (1/08)



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

11	nvoic
DATE	MYO:CE#
5/12/2012	18077

8:11.70 CES PNVIRONMENTAL 4904 ORIGOS RD. HOUSTON, TEXAS 37(2)

SHIP TO	
SAME	

P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
374956	Nat 30	BCD	5/12/2008	CO TRUCK	Houston	
<b>Q</b> TY	PRODUCT#		DESCRIPT	ÓN	PRICE EACH	AMOUNT
6 6 4	JANK W	EMULSIFIER TRUCK WAS HANDLE 72 Drum Pomp S Sales Tax	H BRUSHES INCH WISTEEL Juper Duty 7GPM	TUP	5 95 13 19 14.95 30 80 8.25%	1,487.501 70.14 89.701 123.201 146.82
PLEASE REMIT P.	AYMENT TO:				ubtotal	\$1,779.54

MARTINSVILLE, TEXAS 75958

Fax#	E-mail	Web Site
281-542-5002	aonechem@aol.com	www.a-onechemicals.com

Order Re	equest Form	P.O. Number:	37495	56
		Date: 5	12-08	
Vendor:	A one Sher			
Contact:	,			
Phone:				
Item#	Description		Quantity	Cost \$
	DYNA SOLV		1 TOTE	1487 50
	TRUCK WASH	BRISHES	6	79.14
	HAUBLE 72 INC	H	6	89.70
	DRUM pumps	ſ	4	123.20
Submitted By	Love Thor			192636
			and the second s	e de qui e un en en en en en en en en en en en en en
Approved By:	<del></del>	And a Principle of the State of	* * *	
	<u> </u>	1911 1921		
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Trans =		Vendor Re-Sale		
MRI DRM	□ V	endor to Charge Sale	S DIX	
DSE			<b>●</b> EPAH	005500017



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

## Invoice

DATE	INVOICÉ#
5/12/2008	18060

BILL TO	
CES ENVIRONMENTAL 4904 GRIGGS RD. HOUSTON, TEXAS 77021	

P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
TAUK WASH.	Net 30	BCD	5/12/2008	CO. TRUCK	DEER PARK	
QTY	PRODUCT#		DESCRIPT	ION	PRICE EACH	AMOUNT
į	102086	TS1531)New	General Pump 8g	pm. 21 <b>75</b> psi. 1450	rpm. 2,156.50	2,156.50T
1	462655	1	nloader Rated 400	00 pei: 200F. 1/2" I	PT 140.14	140.14T
1	410320	Flow Switch C		•	117.04	117.04T
1	142680			Bushing 6000 psi	2.00	2.00T
1	134102	2' X 3/8" ends	R-2 Jumper Hose	<del>)</del>	15.14	15 147
1	2X894	Switch, Push	•		12.84	12.84T
		Sales Tax			8.25%	201.61
		TANK L PRESSUR Lord	JASH. E WASHE!	₹.	DOST 5-21-0	

PLEASE REMIT PAYMENT TO: A-ONE CHEMICALS P.O. BOX 63 MARTINSVILLE, TEXAS 75958 Subtotal \$2,443 66

Total \$2,645.27

Fax#	E-mail	Web Site
281-542-5002	aonechem@aol.com	www.a-onechemicals.com



## SERVICE & MAINTENANCE **REPAIR ORDER**

## CHEMICALS & EQUIPMENT, INC.

Toll F	ree (877) 644-1492 •	<ul><li>aonechem@aol.com</li></ul>			
DATE	]	COMPANY NAME	CONTACT	TELEPHONE	E-MAIL
4.1-6.	Cha				
CHEMICAL CUSTOMER	ADI	DRESS OF LOCATION	STATE & ZIP	TYPE OF UNIT	POWER
	14				
TIME IN TIME OUT	MAKE OF F	PUMP & MOTOR	TYPE OF CHEMICAL	PUMP	SN#
QUANTITY	PART NUMBER	DESCRIPTION	OF ITEM	UNIT PRICE EACH	TOTAL
		SAPLITORS			
<u> </u>	102030	No BUNG LANDO	in p		
		\$# \$41			
1	4600	13/13/ 18 time wateras			
1	4463,341 34	procession to be		<u> </u>	
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	1 . 1 2 . 2	M. J. Bliber			
	2 x 3 ) /	Perh but a switch			
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DESCRIP	TION OF REPAIR &	MAINTENANCE PERFORMED	1	SUBTOTAL OF PARTS	<u> </u>
,,			RATE	LABOR CHARGES	
	1	Nonz		SERVICE CALL	
	James	1 honz		SUBTOTAL	
· ·	$-/\infty$			TAX	
	1			TOTAL	
	j i		CUSTOMER SIGNATURE		
			DATE COMPLETED		
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## SERVICE & MAINTENANCE **REPAIR ORDER**

### CHEMICALS & EQUIPMENT, INC.

Toll F	ree (877) 644-1492 •	<ul><li>aonechem@aol.com</li></ul>				
DATE		COMPANY NAME		CONTACT	TELEPHONE	E-MAIL
5-7-08	CES					
CHEMICAL	ADI	DRESS OF LOCATION	*	STATE & ZIP	TYPE OF UNIT	POWER
CUSTOMER	Houston					
TIME IN	Houston MAKE OF F	PUMP & MOTOR		TYPE OF CHEMICAL	.PUMP	SN#
TIME OUT						
QUANTITY	PART NUMBER	DESCRIPTION		ГЕМ	UNIT PRICE EAC	CH TOTAL
		5# PL13052				
ii	102086	New DW153 into	rpump			
		5#349				
	462655	Bluespringual	osder			
1	40320	Flow switch				
	14)2680	1/2"-3/8 hip bus	hing_			
	154102	3/8'-2' R2 host				
	2x894	Push button swit	ich			
			<u> </u>			
			<del></del>			
DESCRIPT	ION OF REPAIR &	MAINTENANCE PERFOR	RMED		SUBTOTAL OF PAI	 PTS \$
				RATE		
/			<u>-</u>	HOURS @ \$	LABOR CHAR	
/	/ (	1/hom2			SERVICE C	ALL
(	/ mes		<u> </u>		SUBTO	TAL
	/ω.	100/0				TAX
	Lining	et 18060			TOT	AL
	1		CU	STOMER SIGNATURE		
			DA	ATE COMPLETED		
				<u></u>		

## A-ONE

## SERVICE & MAINTENANCE REPAIR ORDER

### CHEMICALS & EQUIPMENT, INC.

Toll F	ree (877) 644-1492 •	aonechem@aol.com			•	7%;
DATE	1	COMPANY NAME	•	CONTACT	TELEPHONE	E-MAIL
8-1-01	Arc		* <b>**</b>			
CHEMICAL	CES	DRESS OF LOCATION		STATE & ZIP	TYPE OF UNIT	POWER
CUSTOMER	, t	ALCO OF LOOM HON	_	O IAI L G Z II	ATTI E OF ORT	1 OVILIN
1,5	Houston		1			1* -
•	MAKE OF PUMP &	MOTOR	f	TYPE OF CHEMICAL	PUMP	SPECIAL NOTES
			• <del></del> -:			
QUANTITY	PART NUMBER	DESCR	IPTION OF IT	EM	UNIT PRICE EACH	TOTAL
• 1	B3VX450	Scriptine belt	· •			
1 4.54			<del></del>			
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	TAUKUNDA					
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		1,	<u> </u>		3	
DESCRIPT	ION OF REPAIR & N	MAINTENANCE PERFO	RMED	· S	UBTOTAL OF PARTS	<u>.                                    </u>
	,		Zinner.	RATE	LABOR CHARGES	and the
ΛI	1. Charle		~/ **	HOURS @ \$		
1111	ready Chara	160			SERVICE CALL	-
	' )	1			SUBTOTAL	-
	Out				ŢA,	(
	. H.	17980			TOTAL	**************************************
	ready Charge	1170	CU	STOMER SIGNATURE	-	<b>)</b>
		<del>-</del> 	DA	TE COMPLETED	, See	

CES ENVIRONMENTAL S	SERVICES, INC.			38427
Date Type 4/14/2008 Bill 4/14/2008 Bill 4/14/2008 Bill 4/14/2008 Bill 4/17/2008 Bill 4/24/2008 Bill	s & Equipment, Inc. Reference 17864 17769 17827 17801 17918 17962 17957	Original Amt. 270.63 1,034.76 3,328.69 230.56 1,840.68 744.23 804.69	6/13/2008 Balance Due Discount 270.63 1,034.76 3,328.69 230.56 1,840.68 744.23 804.69 Check Amount	Payment 270.63 1,034.76 3,328.69 230.56 1,840.68 744.23 804.69 8,254.24
CES Environmental S	CES			8,254.24

560632 (1/08)



APR 21 2008

## Invoice

DATE INVOICE # 4/9/2008 17864

### CHEMICALS & EQUIPMENT, INC.

2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

281-542-5002

Please remit Payment To:   A-ONE CHEMICALS   P.O. BOX 63   P.O. BOX 64		Fax #		E-mail			Web Site			
P.O. NUMBER TERMS REP SHIP VIA F.O.B. PROJECT Not 30 BCD 4/8/2008 CO. TRK. HOUSTON  CTY PRODUCT # DESCRIPTION PRICE EACH AMOUNT Sales Text  POSTED  POSTED  PLEASE REMIT PAYMENT TO:  SAME  SAME  P.O. NUMBER TERMS REP SHIP VIA F.O.B. PROJECT NOT NOT NOT NOT NOT NOT NOT NOT NOT NO	P.O. BO	K 63					Tot	ai		\$270.63
P.O. NUMBER   TERMS   REP   SHIP   VIA   F.O.B.   PROJECT							Sub	total		\$250.00
P.O. NUMBER   TERMS   REP   SHIP   VIA   F.O.B.   PROJECT			PO	ST Hill	ED					
SAME	2	159580	50' X Sales	3/8" - R- Tax	2 Hose (6,000 ps	i)			-	250.00T 20.63
CES ENVIRONMENTAL 4904 GRIGGS RD. HOUSTON, TEXAS 77021  P.O. NUMBER TERMS REP SHIP VIA F.O.B. PROJECT	QTY	PRODUC	CT#		DESCRIPTI	ON		PRICE EACH	A	MOUNT
CES ENVIRONMENTAL 4904 ORIGOS RD. HOUSTON, TEXAS 77021		Net 30		BCD	4/8/2008	CO. TRK.		HOUSTON		
CES ENVIRONMENTAL SAME 4904 GRIGGS RD.	P.O. NUMBER	TERM	s i	REP	SHIP	VIA		F.O.B.	PR	ROJECT
BILL TO SHIP TO	4904 ORIGOS RD.					SAME				
	····	,								

nonechem@nol.com

www.a-onechemicals.com

## **SERVICE & MAINTENANCE REPAIR ORDER**

### CHEMICALS & EQUIPMENT, INC.

DATE	166 (0//) 044-1452	aonechem@aol.com     COMPANY NAME	CONTACT	TELEPHONE	E-MAIL
4-8:04	000				***
CHEMICAL CUSTOMER		DRESS OF LOCATION	STATE & ZIP	TYPE OF UNIT	POWER
	Houston MAKE OF PUMP 8	MOTOR	TOPE OF QUENTON	DUM 10	ODEOLAL MOTEO
	MAKE OF PUMP 8	\$ MOTOR	TYPE OF CHEMICAL	PUMP	SPECIAL NOTES
QUANTITY	PART NUMBER	DESCRIPTION O		UNIT PRICE EACH	TOTAL
2 )	K5710 +++	si & Rahores		12500	250.00
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					-55.
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DESCRIPT	TON OF PEDAIR &	MAINTENANCE PERFORMED		LIDTOTAL OF DARTS	
DESCRIPT	14 7	# 10001	RATE	SUBTOTAL OF PARTS	
Charg	end to Invo	che# 17864	HOURS @ \$	LABOR CHARGES	<u> </u>
	4-9-08			SERVICE CALL	· <del>-</del>
				SUBTOTAL	
					(20,63
			-/1/	7	The state of the s
		* <b> </b>	CUSTOMER SIGNATURE	TOTAL	1270:63
			1 Com		<b>b</b>
			DATE COMPLETED	4/8/01	<i>y</i>
				7-1-0	



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

281-542-5002

## Invoice

DATE	INVOICE#
3/27/2908	17769

BILL TO	<b>!</b>			SHIP TO		
CES ENVIRONMEN 1904 GRIGGS RD. HOUSTON, TEXAS				EAME		
P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
37455	Not 30	BCD	3/28/2008	CO. TRK.	HOUSTON	
QTY	PRODUCT®		DESCRIPTI	ION	PRICE EACH	AMOUNT
250	gal-fleet wa	FLEET WASH	CONC.(HD LIQ! (DEGREASER)	UID	3.45	862.501
	430027	Seles Tax	POST	ED XANDA	8.25%	93.40T 78.86 101.11
PLEASE REMIT PA					Subtotal	8955.90
A-ONE CHEI P.O. BOJ MARTINEVILLE, 1	C 63				Total	\$1,034.76
	Fex#		S-mes		Web Site	



## SERVICE & MAINTENANCE REPAIR ORDER

### CHEMICALS & EQUIPMENT, INC.

DATE 3-20-05 CES  CHEMICAL CUSTOMER HOW, FOR TYPE OF CHEMICAL PUMP  PART NUMBER DESCRIPTION OF ITEM UNIT PRICE EACH TOTAL 1 4300.27  Thermostat  PART NUMBER DESCRIPTION OF ITEM UNIT PRICE EACH PRICE
CHEMICAL CUSTOMER  HOUSTONE  MAKE OF PUMP & MOTOR  TYPE OF CHEMICAL PUMP  SPECIAL NOTES  QUANTITY  PART NUMBER  DESCRIPTION OF ITEM  UNIT PRICE EACH  TOTAL  1 430027  Thermstat  93.40
CHEMICAL CUSTOMER  HOUSTONE  MAKE OF PUMP & MOTOR  TYPE OF CHEMICAL PUMP  SPECIAL NOTES  QUANTITY  PART NUMBER  DESCRIPTION OF ITEM  UNIT PRICE EACH  TOTAL  1 430027  Thermstat  93.40
CUSTOMER  HOUSTON  MAKE OF PUMP & MOTOR  TYPE OF CHEMICAL PUMP  SPECIAL NOTES  QUANTITY  PART NUMBER  DESCRIPTION OF ITEM  UNIT PRICE EACH  TOTAL  93.40
QUANTITY PART NUMBER DESCRIPTION OF ITEM UNIT PRICE EACH TOTAL  1 430027 Thermostat  93.40
QUANTITY PART NUMBER DESCRIPTION OF ITEM UNIT PRICE EACH TOTAL  1 430027 Thermostat  93.40
1 430027 Thermostat 93.40
1 430027 Thermostat 93.40
1 430027 Thermostat 93.40
1 Nose
DESCRIPTION OF REPAIR & MAINTENANCE PERFORMED SUBTOTAL OF PARTS \$
SUBTOTAL  SOBTOTAL OF PARTS \$  HOURS @\$ RATE LABOR CHARGES  SERVICE CALL  SUBTOTAL
SERVICE CALL
3-27-08
SUBTOTAL
' TAX
TOTAL
CUSTOMER SIGNATURE
, and the state of

## Order Request Form P.O. Number: 374555 Date: 3-21-08 A. one Chamine Contact: Phone: Description Item # Quantity Cost \$ Fleet wash Concentrate Brightener Approved By: Office Use Only Internal Expense: Job Expense:

What Job?

Trans

DRM

Vendor Re-Sale Certaite
 □ Vendor to Charge Sales = x

EPAHO055000186

added to Screen fire of Joseph



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

## Invoice

DATE	INVOICE#
4/3/2008	17827

BILLTO	SHIP TO
CES ENVIRONMENTAL 4904 GRIGGS RD. HOUSTON, TEXAS 77021	SAME

DYNA-BRITE II CONC(HD ALUM 83 BRITE) (X)HARZARDOUS (CORROSIVE LIQUIDS, ACIDIC, INORGANIC, N.O.S.,6, UM#9264 (CONTAINS: HYDROFLOURIC & SULFURIC ACID) DYNA-BOLV "101"CONCE (HD RESIN EMULSIFIER)  35 GAL-HT 2222 "HT-2222" PASSIVATOR ACID CONCENTATE(CORROSIVE LIQUIDS, ACIDIC, INORGANIC, N.O.S.,3, UN#9264, P KG.II)(CONTAINS: HYDROCHLORIC AND PHOSPHORIC ACID) EMERGENCY: (300) 424-9300 Sales Tex  PLEASE REMIT PAYMENT TO:  DYNA-BRITE II CONC(HD ALUM 85 BRITE) (X)HARZARDOUS (HT CONTAINS: HYDROCHE ACID)  BENULSIFIER  14.50  CONCENTRATE(CORROSIVE LIQUIDS, ACIDIC, INORGANIC, N.O.S.,3, UN#9264, P KG.II)(CONTAINS: HYDROCHLORIC AND PHOSPHORIC ACID) EMERGENCY: (300) 424-9300  8.25%  PLEASE REMIT PAYMENT TO:	
200 GAL-ALUM II  DYNA-BRITE II CONC(HD ALUM 88 BRITE) (X)HARZARDOUS (CORROSIVE LIQUIDS, ACIDIC, INORGANIC, N.O.S., UNM9264 (CONTAINS: HYDROFLOURIC & SULFURIC ACID) DYNA-SOLV *101°CONCE (HD RESIN 5.95 EMULSIFIER)  35 GAL-HT 2222 "HT-2222" PASSIVATOR ACID CONCENTRATE(CORROSIVE LIQUIDS, ACIDIC, INORGANIC, N.O.S., UNM9264, P KG. II)(CONTAINS: HYDROCHLORIC AND PHOSPHORIC ACID) EMERGENCY: (800) 424-9300 Sales TEX  REASE REMIT PAYMENT TO:  CX) HAZARDOUS "BURGENCY: (800) 424-9300  8.25%	
(X)HARZARDOUS (CORROSIVE LIQUIDS, ÁCIDIC, INORGANIC, N.O.S., & UNW3264 (CONTAINS: HYDROFLOURIC & SULFURIC ACID) DYNA-SOLV '101"CONCE (HD RESIN EMULSIPIER)  193 GAL-HT 2222  "HT-2222" PASSIVATOR ACID CONCENTRATE(CORROSIVE LIQUIDS, ACIDIC, INORGANIC, N.O.S., & UNW3264, P KG. II)(CONTAINS: HYDROCHLORIC AND PHOSPHORIC ACID) EMBERGENCY: (800) 424-9300 Sales Tex  8.25%  LEASE REMIT PAYMENT TO:	TOUNT
DYNA-SOLV "101"CONCE (HD RESIN 5.95 EMULSIFIER)  S5 GAL-HT 2222  GONCENTRATE(CORROSIVE LIQUIDS, ACIDIC, INORGANIC, N.O.S., 8, UNM3264, P KG. II)(CONTAINS: HYDROCHLORIC AND PHOSPHORIC ACID)  EMERGENCY: (800) 424-9300  Sales Tax  BLEASE REMIT PAYMENT TO:  DYNA-SOLV "101"CONCE (HD RESIN 5.95  EMULSIFIER)  S1.55  14.50  14.50  CONCENTRATE(CORROSIVE LIQUIDS, ACIDIC, INORGANIC, N.O.S., 8, UNM3264, P KG. II)(CONTAINS: HYDROCHLORIC AND PHOSPHORIC ACID)  EMERGENCY: (800) 424-9300  S2.25%  SUBSTITUTE  S	790.00
*HT-2222* PASSIVATOR ACID CONCENTRATE(CORROSIVE LIQUIDS, ACIDIC, INORGANIC, N.O. S., S., UNK9264, P KG.II)(CONTAINS: HYDROCHLORIC AND PHOSPHORIC ACID) EMERGENCY: (800) 424-9300 Sales Tex  *BLEASE REMIT PAYMENT TO:  *HT-2222* PASSIVATOR ACID CONCENTRATE(CORROSIVE LIQUIDS, ACIDIC, INORGANIC, N.O. S., S., UNK9264, P KG.II)(CONTAINS: HYDROCHLORIC AND PHOSPHORIC ACID CONCENTRATE(CORROSIVE LIQUIDS, ACIDIC, INORGANIC, N.O. S., S., UNK9264, P KG.II)(CONTAINS: HYDROCHLORIC AND PHOSPHORIC ACID CONCENTRATE(CORROSIVE LIQUIDS, ACIDIC, INORGANIC, N.O. S., S., UNK9264, P KG.II)(CONTAINS: HYDROCHLORIC AND PHOSPHORIC ACID) EMERGENCY: (800) 424-9300 Sales Tex  *Substotal*	1,487.50
PHOSPHORIC ACID) EMERGENCY: (800) 424-9300 Sales Tex  8.25%  LEASE REMIT PAYMENT TO:	797.50
LEAGE REMIT PATMENT TO:	0.00
LEADE REMIT PATMENT IV:	
	\$3,075.00
A-ONE CHEMICALS P.O. BOX 63 IARTINSVILLE, TEXAS 75958 Total	\$3,328.69
Fax # E-mell Web Site	



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

### Invoice

DATE	INVOICE#
4/3/2008	17827

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BILL TO		SHIP TO	
CES ENVIRONMENTAL 4904 ORIOGS RD. HOUSTON, TEXAS 77021		SAME	and the state of t

P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
374613	Net 30	BCD	4/4/2008	CO. TRK.	HOUSTON	
OTY	PRODUCT#		DESCRIPTI	ON	PRICE EACH	AMOUNT
200	GAL-ALUM II	(X)HARZARI INORGANIC,	II CONC(HD AL JOUS (CORROSIN N.O.S.,8,UN#326 PRIC & SULFURI	ve Liquids, áci 4 (contains:	DIC, 3.9:	5 790,00T
250	OAL-101		"101"CONCE (HI		5.9:	1,487.501
55	GAL-HT 2222	"HT-2222" PA CONCENTRA LIQUIDS, ACI	SSIVATOR ACIE TE(CORROSIVE	;,N.O.S., <b>8,UN#</b> 326	64.P	797.50T
	(X) HAZARDOUS	PHOSPHORIC			8.259	0.00T 253.69
		- Constitution of the Cons	**************************************			
		Avanter and a service and a se	·		re commence de la com	
and a supplication of the	4/10/08		).			

PLEASE REMIT PAYMENT TO: A-ONE CHEMICALS P.O. BOX 63 MARTINSVILLE, TEXAS 75958 Subtotal \$3,075.00

Total \$3,328.69

-	Fax#	E-mail	Web Site
-	281-542-5002	aonechem@sol.com	www.a-onechemicals.com

Order 1	Request Form	P.O. Number: 3	74613	
Vendor:	_ A one chem	Date: 4-3	2.08	
Phone:				
Item #	<u>Description</u>		Quantity Cost 5	<u> </u>
12 / 2 DSP.	Red Soup		1 18th 1300	204
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O				- a
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Submitted By:	Loran Shona			_
Approved By:_	Junita		eller .	
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Internal Expens	Office Use	Uniy		to it was in
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Les de VIRI		THEORE IN CONTRACTOR		A second
DRM		r to Charge Sales - ix	The state of the s	



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

281-542-5002

#### Invoice

DATE	INVOICE
4/1/2008	17801

BILL TO CES ENVIRONMEN 1904 GRIGGS RD. HOUSTON, TEXAS				SAME		
P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
374613.	Net 30	BCD	4/1/2008	CO. TRK.	Door Park	
QTY	PRODUCT#		DESCRIPT	ION	PRICE EACH	AMOUNT
2.76	LB-POTASSIUM (X) HAZARDOUS	PERMANGAN	IATE,5.1 UN#149 (: (800) 424-9300		77.17	212.99T
		PO	STE	D		
PLEASE REMIT P. A-ONE CHE P.O. BOX MARTINSVILLE, '	MICALS (63	am	56		Subtetel Total	\$212.99 \$230.56
	Fex#	-(	S-mail		Web Site	1



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

281-542-5002

#### Invoice

DATE	INVOICE#
4/16/2008	17918

BILL TO				SHIP TO		
CES ENVIRONMEN 4904 ORIGOS RD. HOUSTON, TEXAS		N N N N N N N N N N N N N N N N N N N		GAME		
P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
374735	Not 30	BCD	4/16/2008	CO, TRK.	HOUSTON	
<b>CTY</b>	PRODUCT®		DESCRIPTI	ON	PRICE BACH	AMOUNT
		HANDLE 72 Drum Pemp B Sales Tax	OST FIT  08	ED	5.95 14.95 30.80 8.25%	89.70T 123.20T
PLEASE REMIT R A-ONE CHE	MICALS	Pai	ajas N	oelia.	Subtotal	\$1,700.40
RO. BOI MARTINEVILLE,			J		Total	\$1,840.68
	Fex#		S-meli		Web Site	7

### Order Request Form P.O. Number: 374735 Date: 4-16-08 - one - Chemicas Contact: Phone: Description Item# Quantity Cost \$ TOTE 618 Submitted By: ( Office Use Only Internal Expense: Job Expense:

FS

☐ Venidor to Charge Sales 1=1x



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

BILLTO

### Invoice

DATE	INVOICE#
4/24/2008	17962

CES ENVIRONMEN 4904 GRIGGS RD. HOUSTON, TEXAS				SAME			
		<del> </del>					
P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.		PROJECT
374792	Net 30	BCD	4/24/2008	CO. TRK.	Houston	n .	
	- IDONI ICT#	; ;;	rinicentutu (		:    recou	224/0-11 224/0-11	
	GAL-777	<u> </u>	"777" PRE-SOLV	e solvent		12.50	687.501
	(X) HAZARDOUS	SOLVENTS, N PETROLEUM	MBUSTIBLE LO.S.,3,UN#1268, DISTILLATES) ?: (800) 424-9300	PKG.III)(CONT.	AINS:	8.25%	0.00T 56.73
	i ; ; ;	PO	24 D8	: <b>)</b>	;     ;	.	: :
 	l I i : i	 	1 '	:	:   I 1	,     	il i
PLEASE RÉMIS D A-ONE CHE	MICALS	(!)	mar ()		Sphootoki	:	: \$807 <sup>1</sup> 7500
P.O. BOX MARTINSVILLE,		1	Mar /	harms [	Total		\$744.23
	Fax#		E-mail		Web	Site	
	281-542-50	02	sonechem@pol.	com	www.a-onech	emicals.com	

SHIP TO

Order Request	Form	P.O. Number: 2	37,4792	
Λ		Date: 4/23	/08	
Vendor: A - ON	e Chen			
Contact: B. 1			······································	
Phone:				
Item #	<u>Description</u>		Quantity	Cost \$
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APR 2 4 2008

### Invoice

### DATE INVOICE # 4/23/2008 17957

#### CHEMICALS & EQUIPMENT, INC.

2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

						<u> </u>	
BILLTO				SHIP TO			
CES ENVIRONMEN 4904 GRIGGS RD. HOUSTON, TEXAS			wash Ry	SAME PAGE	NA(1)	e u baher	
P.O. NUMBER	TERMS	REP	SHIP	VIA		F.O.B.	PROJECT
VERBAL LOREN	Not 30	BCD	4/23/2008	CO. TRK.	1	Deer Park	
OTY	PRODUCT#		DESCRIPTI	ON		PRICE EACH	AMOUNT
3 6 2 1 3 3	462655 103082B ORN120 251315 159580 352250 368424 142415 251190	Kit 82B Packi O-Ring for 15 Nozzie 7,5 X 4 S0' X 3/8" - R. Chint Trigger 24" X 1/4" MF 300 F. 1/4" FPT Coup Nozzie 4,5 X 4 Sales Tax	Blue Spring Unleader Rated 4000 psi. 200F. 1/2" FPT Kit \$2B Packing W/ Brass retainers for 1531 pumps O-Ring for 1531 Valves Nozzie 7.5 X 40 degree 1/4" MPT 50' X 3/8" - R-2 Hese (6,000 psi) Gaint Trigger Gun 5000 psi/10gpm/300 F. SS. Outlet 24" X 1/4" MPT Wand Stainless W/Het Grip 4100 psi, 300 F. 1/4" FPT Coupler Hi Pressure Nozzle 4.5 X 40 degree 1/4" MPT			140.14 80.55 2.00 6.38 125.00 47.50 18.38 2.60 6.38 8.25%	140.14T 241.65T 12.00T 12.76T 125.00T 142.50T 55.14T 7.80T 6.38T
PLEASE REMIT PA					Subt	otal	\$743.37
P.O. BOX MARTINSVILLE, 1	63				Tot	al	\$804.69
	Fex#	T	5-mail		<del>- 1,-,-,</del>	Web Site	
	281-542-50	102	sonscham@sol.	rom l		v. a-on eah amical s. con	



#### CHEMICALS & EQUIPMENT, INC.

2902 EAST "X" STREET • DEER PARK, TX 77536 (281) 542-5000 • Fax (281) 542-5002 Toll Free (877) 644-1492 • aonechem@aol.com

DATE 4-1-08	CES	COMPANY NAME		CONTACT	TELEPHONE	E-MAIL
CHEMICAL CUSTOMER	Houston	DRESS OF LOCATION	STA	ATE & ZIP	TYPE OF UNIT	POWER
	MAKE OF PUMP	& MOTOR	TYPE	OF CHEMICAL P	UMP	SPÉCIAL NOTES
QUANTITY	PART NUMBER	DE	SCRIPTION OF ITEM		UNIT PRICE EACH	TOTAL
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Marketon Company	4/25/08
DESCRIPTION OF REPAIR & MAINTENANCE PERFORMED	SUBTOTAL OF PARTS \$
	HOURS @ \$ LABOR CHARGES
	SERVICE CALL
	SUBTOTAL
Joe mon	TAX
	TOTAL
-tnutt 17957	CUSTOMER SIGNATURE
	DATE COMPLETED

3918.75

#### CHEMICALS & EQUIPMENT, INC.

2902 EAST "X" STREET • DEER PARK, TX 77536 (281) 542-5000 • Fax (281) 542-5002 Toll Free (877) 644-1492 • aonechem@aol

CC (077) 044-1492 ·		*			<u> </u>
	COMPANY NAME		CONTACT	TELEPHONE	E-MAIL
CES					
ADI	DRESS OF LOCATION	ST	ATE & ZIP	TYPE OF UNIT	POWER
Houston					
MAKE OF PUMP 8	MOTOR	TYPE	OF CHEMICAL F	PUMP	SPECIAL NOTES
PART NUMBER	DESCRIPT	TION OF ITEM		UNIT PRICE EAC	H TOTAL
462655	Bluesportashyod	mader			
1030828	V- packing and ret	Jiner Kit	482	A CONTRACTOR OF THE PROPERTY O	
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251315	1				
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ION OF REPAIR &	MAINTENANCE PERFORM	MED		JBTOTAL OF PAR	TS\$
		H(	RATE OURS @ \$	LABOR CHARG	ES
				SERVICE CA	\LL
la de	9///			SUBTOT	ĀL
				T	AX
				TOTA	<b>\L</b>
tru. A	17957	сиѕтом	ER SIGNATURE		
		DATE C	OMPLETED		and the same of th
	PART NUMBER  462655  08N120  251315	CES ADDRESS OF LOCATION  Howston MAKE OF PUMP & MOTOR  PART NUMBER  PART NUMBER  DESCRIPT  1030828  V. Packing and tell  OR NIDO  251315  40075  55. NOTE  1030828	CES ADDRESS OF LOCATION  How, tom MAKE OF PUMP & MOTOR  PART NUMBER  PART NUMBER  DESCRIPTION OF ITEM  HOD 655 Blue & presquiction der  ORNIDO 1531 Valve Orings  251315  40075 SS. Norales  TION OF REPAIR & MAINTENANCE PERFORMED  LOCATION  LOCATION  CUSTOM	COMPANY NAME  CES  ADDRESS OF LOCATION  STATE & ZIP  HOWARD OF PUMP & MOTOR  TYPE OF CHEMICAL F  PART NUMBER  DESCRIPTION OF ITEM  4/02 655  Blues paragraphical for the state of the state	ADDRESS OF LOCATION  HOW, TO LOCATION  MAKE OF PUMP & MOTOR  PART NUMBER  DESCRIPTION OF ITEM  UNIT PRICE EACH  1/62675  Blue & parts functioned by the second of the seco



#### CHEMICALS & EQUIPMENT, INC.

2902 EAST "X" STREET • DEER PARK, TX 77536 (281) 542-5000 • Fax (281) 542-5002

1011 F	ree (8//) 644-1492	<ul> <li>aonechem@aol.com</li> </ul>			The state of the s	
DATE		COMPANY NAME		CONTACT	TELEPHONE	E-MAIL
1 - 20	A = -	and the second of the second o				N 1875
4-17-08 CHEMICAL	CES	DDRESS OF LOCATION	l s	TATE & ZIP	TYPE OF UNIT	POWER
CUSTOMER						, over
	Houston MAKE OF PUMP					
	MAKE OF PUMP	& MOTOR	TYP	E OF CHEMICAL	PUMP	SPECIAL NOTES
QUANTITY	PART NUMBER	DESCRIP	TION OF ITEM		UNIT PRICE EACH	TOTAL
3	35 2250	Tallerette	7-17-1			
3	36844824	Triger stin	of the state of th	The second		
3		Na"	<del>- /</del>			
	142415	"/4" h.p. couples				
	251190	40045 SS. Wozzle	·			
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DESCRIPT	TION OF REPAIR &	MAINTENANCE PERFOR	MED	9	SUBTOTAL OF PART	S.\$.
				DATE		
/	( ) ,			HOURS @\$	LABOR CHARGE	
		1/			SERVICE CAL	<u>L</u>
	[M] []				SUBTOTA	L
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/	/		and the second			
	T H	17957			TOTAL	•
ĺ	· LAU.T'	1 170 /	CUSTO	MER SIGNATURE		
			DATE	COMPLETED		-



#### CHEMICALS & EQUIPMENT, INC.

2902 EAST "X" STREET • DEER PARK, TX 77536 (281) 542-5000 • Fax (281) 542-5002

Toll F	ree (877) 644-1492	<ul><li>aonechem@aol.com</li></ul>				
DATE		COMPANY NAME		CONTACT	TELEPHONE	E-MAIL
4.4.65	$\mu_{T}$					
CHEMICAL	CES AL	DDRESS OF LOCATION		TATE & ZIP	TYPE OF UNIT	POWER
CUSTOMER						
	MAKE OF PUMP	2 MOTOR	TVD	E OF CHEMICAL	DUMD	SPECIAL NOTES
	WARL OF FOWE	a MOTOR	111	L OF CHEWICAL	r OMI	OF LOIAL NOTES
QUANTITY	PART NUMBER	DESCRIPT	ION OF ITEM		UNIT PRICE EAC	CH TOTAL
3	39330	Trigor 500	· · · · ·			
3	3654 <b>×62</b> 4	216 Wang				
3	143415	19 hop couple				
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DESCRIP	ION OF REPAIR &	MAINTENANCE PERFORM	/IED	RATE	SUBTOTAL OF PAI	RTS \$
ĺ				HOURS @\$	LABOR CHARC	SES
		9	•		SERVICE C	ALL
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	7			·		TAX
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			сиѕто	MER SIGNATURE		-
			DATE	COMPLETED		·····

560632 (1/08)



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

281-542-5002

#### Invoice

DATE	INVOICE#
3/4/2008	17618

BILL TO	ВІЦТО					
CES ENVIRONMEN 4904 GRIGGS RD. HOUSTON, TEXAS				SAME		
P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
						rnuncei
374380 anv	Net 30 PRODUCT#	BCD	3/4/2008 DESCRIPTI	CO. TRK.	HOUSTON PRICE EACH	AMOUNT
120	GAL-NEU. DET.	DEODORIZE	JPER CONC. (TAIR)  OSTF 3/12/08	ED ose	14.25	1,710.00
PLEASE REMIT PA		1/11			\$1,710.00	
P.O. BOX MARTINSVILLE,	<b>1 63</b>	1 Hc	umo	$\sim$ [	Total	\$1,710.00
	Fax#	<u> </u>	E-mail		Web Site	

sonechem@sol.com

www.a-onechamicals.com



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

281-542.5002

#### Invoice

DATE	INVOICE #
3/4/2008	17618

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CES FAVIRONMEN 4904 GRIGGE RD HOUSTON, TEXAS		# ### TARKS#Jagebaspearies attracopy		SAME	oceania e e e e e e e e e e e e e e e e e e e	
P.O. NUMBER	TERMS	REP	garanas varan masarana segenia	VIA	provinciare securitari e contra e un securitari de contra e contra e contra e e contra e contra e contra e con F.O.S.	PROJECT
374380	Het 30	HCD.	9/4/2008	CO TRK.	ноизтон	de capaneta an pendag-apangangangangan dan menungkan pendagan ana kapan salah dalam sebagai sebelah
The second secon	PRODUCT#	ilika kentra a sitema termingka perakan kentra demakan kepua	DESCRIPTI	<b>6</b> ne o suo suo suo suo suo suo suo suo suo s	PRICE BACH	AMOUNT
		DEODORIZE	3176	V 12 P		
PLEASE REMIT PA					Subtotal	\$1,710 90
PO 80) MARTINSVILLE, '	< 63 J	<b>.</b>	**************************************	1	Total	\$1,710 00
	Fax.#		E-mail	and gravatures, make the property of the second and reference on the second and reference of the second and the	White Site	The first consequence of the second

aonechem@uol.com

www.a-onechemicals.com

Order Reques	t Form	P.O. Number:	374380	
Vendor: A-O	ne Chemical	Date: 3-1	r-08	<b>.</b>
Contact:				
Phone:				
(tem #	Description  Description	Scrubber	Quantity	Cost \$
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ubmitted By:/	mhn			
	Office I	Jse Only		
nternal Expense:	Job Expens What Jo	e:	A	
CS FS Trans SGA MRI	□. □.G	ive Vendor Re-Sale Co		

EPAHO055000205



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

#### Invoice

DATE	INVOICE#
3/12/2008	17681

CES ENVIRONMENTAL 4904 GRIGGS RD. HOUSTON, TEXAS 77021	

P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
374 469	Net 30	BCD	3/11/2008	CO. TRK.	HOUSTON	
QTY	PRODUCT#		DESCRIPTI	ON	PRICE EACH	AMOUNT
1 1	103109 411065 463680K	Pressure Switch	king for 5050 pum h 250 V/15 amp. : psi,10.5gpm,195	np 3/8" MPT	DN PRICE EACH	

PLEASE REMIT PAYMENT TO: A-ONE CHEMICALS P.O. BOX 63 MARTINSVILLE, TEXAS 75958

Low Shoma.

Subtotal \$384.08

**Total** \$415.77

Fax#	E-mail	Web Site
281-542-5002	aonechem@aol.com	www.a-onechemicals.com



#### CHEMICALS & EQUIPMENT, INC.

2902 EAST "X" STREET • DEER PARK, TX 77536 (281) 542-5000 • Fax (281) 542-5002

Toll F	ree (877) 644-1492	<ul><li>aonechem@aol.com</li></ul>				
DATE		COMPANY NAME		CONTACT	TELEPHONE	E-MAIL
3-11-01	CES					
CHEMICAL	AD	DRESS OF LOCATION		STATE & ZIP	TYPE OF UNIT	POWER
CUSTOMER	Houton					
	MAKE OF PUMP	& MOTOR	T	YPE OF CHEMICAL	PUMP	SPECIAL NOTES
			]			
QUANTITY	PART NUMBER	DESCR	IPTION OF ITE	ΞM	UNIT PRICE EA	CH TOTAL
	103109	V-packing kitt	109		1/8.40	118.40
1	411065	Pressure suituh			92.30	W.30
	46368011	5600ps. unloade	<u>r</u>		173.38	173.38
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DESCRIPT	ILL	MAINTENANCE PERFO	RMED		SUBTOTAL OF PA	 DTC
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hage	1 to Invoice 3-12-08	S TOO	-	HOURS @ \$	LABOR CHAR	
	5-12-0	).	-		SERVICE C	
1					SUBTO	TAL
						TAX 31.69
					TOT	AL 4/15.77
1			cus	TOMER SIGNATURE		
			DAT	E COMPLETED		<u> </u>
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2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

281-542-5002

#### Invoice

DATE	INVOICE#
3/20/2008	17730

BILLTO			7	SHIP TO		
CES ENVIRONMEN 1904 GRUCIOS RD. HOUSTON, TEXAS				SAME		
P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
374496	Not 39	BCD	3/20/2008	CO. TRK.	Door Park	
QTY	PRODUCT®		DESCRIPTI	ON	PRICE BACH	AMOUNT
6	GAL-101 A-3032 HANDLES	TRUCK WAS	DYNA-BOLV "101"CONCE (HD RESIN EMULSPIES) TRUCK WASH BRUSHES 1 MANDLE 72 INCH WETERL TIP 1			
PLEASE REMIT P		//			Subtotal	\$1,656.34
A-ONE CHE		<i>i I</i>		_ / [		
P.O. BOI MARTINSVILLE,	L 63	/ Jon			Total	\$1,792.98

## P.O. Number: 374494 Order Request Form Vendor: A- one Chemical Contact: Phone: Description Item# Quantity Cost \$ Submitted By: Approved By: \_ Office Use Only

Internal Expense:	Job Expense:		
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CS	What Job?		
FS		*	
Trans 🚋	<u> </u>		
SGA =	☐ Give Vendor Re-Sale Ce		
MRI 🕳	☐ Vendor to Charge Sales	Ex	÷ -
DRM			

CES ENVIRO	NMENTAL	SERVICES, INC	Commence of the state of the st		The second secon	2740/
A One	Chemic	als & Equipme	ent, Inc.		4/16/2008	37194
Date 2/13/2008 2/27/2008 2/27/2008 3/12/2008 3/19/2008	Type Bill Bill Bill Bill Bill	Reference 17447 17551 17512 17594 17303	~ []	Original Amt. 1,710.00 259.15 1,743.59 1,751.38 407.68	Balance Due Discount 1,710.00 259.15 1,743.59 1,751.38 407.68 Check Amount	Payment 1,710.00 259.15 1,743.59 1,751.38 407.68 5,871.80
			AY			

CES Environmental S CES

5,871.80

## A.ONE

#### CHEMICALS & EQUIPMENT, INC.

2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

DATE	INVOICE#
1/18/2008	17303

Invoice

P.O. # VARBAL LOREN	
BILL TO	
CES ENVIRONMENTAL 4904 GRIGGS RD. HOUSTON, TEXAS 77021	

SHIP TO		
SAME	 	

P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
374470	Net 30	BCD	1/10/2008	CO. TRK.	HOUSTON	
QTY	PRODUCT#		DESCRIPTI	ON	PRICE EACH	AMOUNT
	103150B 103109	Kit 109 V-Paci	kit for 5050 pump cing for 5050 pum 3/19/08	ap	289.28	

PLEASE REMIT PAYMENT TO: A-ONE CHEMICALS P.O. BOX 63 MARTINSVILLE, TEXAS 75958

Losa Shona

Subtotal \$407.68

Total \$407.68

Fax#	E-mail	Web Site
281-542-5002	aonechem@aol.com	www.a-onechemicals.com



#### CHEMICALS & EQUIPMENT, INC.

2902 EAST "X" STREET • DEER PARK, TX 77536 (281) 542-5000 • Fax (281) 542-5002

Toll F	ree (877) 644-1492	• aonechem@aol.com				
DATE		COMPANY NAME		CONTACT	TELEPHONE	E-MAIL
1 10 00.	1000					
1-10-0% CHEMICAL	CES	DRESS OF LOCATION	· · · · · · · · · · · · · · · · · · ·	STATE & ZIP	TYPE OF UNIT	POWER
CUSTOMER						
	MAKE OF PUMP	& MOTOR		TYPE OF CHEMICAL	DIIMD	SPECIAL NOTES
	WARL OF FORM	A WIOTOK		TIFE OF CHEMICAL	FOWIF	SPECIAL NOTES
	4. * ·					
QUANTITY	PART NUMBER	DESCRI	IPTION OF	ITEM	UNIT PRICE EA	
1	103150B	Kit 150 value	e Kit		289.28	289.28
1	103109	K:+109 5050	Ducki	isc kit	118.40	118.40
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		81-18-08	C	USTOMER SIGNATURE		
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		ε		WIL COM LETED		



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

281-542-5002

#### Invoice

DATE	INVOICE#
2/8/2008	17447

BILL TO				SHIP TO			······	
CES ENVIRONMEN 4904 GRIGGS RD. HOUSTON, TEXAS				SAME				
P.O. NUMBER	TERMS	REP	SHIP	VIA		F.O.B.	PF	ROJECT
	Net 30	BCD	2/8/2008	CO. TRK.	1	HOUSTON		
QTY	PRODUCT#		DESCRIPT	ION		PRICE EACH	A	MOUNT
		C	Lorens			OIL GIS STED		SP
PLEASE REMIT P. A-ONE CHE P.O. BOX	MICALS			<u> </u>		total		\$1,710.00
MARTINSVILLE,					Tot	<b>(81</b>		\$1,710.00
	Fax#		E-mail			Web Site		1

aonechem@aol.com

www.a-onechemicals.com



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

#### Invoice

DATE	INVOICE#
2/21/2008	17551

BILL TO BE ENVIRONMEN 04 GRIGGE RD. DUSTON, TEXAS				SAME	7-050-00-7-00-00-7-00-00-00-7-00-00-00-00-00	
	······································					
P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
374306	Not 30	BCD	2/21/2008	CO. TRK.	HOUSTON	
QTY	PRODUCT#		DESCRIPTI	ON	PRICE EACH	AMOUNT
12	B-120	Handle 120°	w/ Steel tip		19.95	239.40
		Ba	ucyan	TED		
LEASE REMIT PA			7		Subtotal	8239.40
a-one chei P.O. Boj Iartinsville :					Total	\$239.40
	<b>a</b>			L		
	Fex#		<b>5</b> -mell	T	Web Sibe	19.7

Order Re	quest Form	P.O. Number:	574306	
Vendor:	A-One	Date: 2/2	21/08	
Contact:				
Phone:	· · · · · · · · · · · · · · · · · · ·	<del></del>	—	
<u>Item #</u>	Description Handle 120" w/c	Steel 7ip	Quantity 12	Cost \$ 19.95
				23°1.
Submitted By:	Loren	·		/
Approved By:	Mante		678	Tankwash
	Office Us	se Only		
Internal Expension CS	se: Job Expense: What Job?	<u></u>	<del></del>	e de la companya de l
FS Trans SGA MRI		e Vendor Re-Sale Cer idor to Charge Sales		

EPAHO055000215



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

281-542-5002

#### Invoice

DATE	MVOICE#
2/15/2006	17912

ENL TO  ES ENVIRONMENTAL  904 ORIGOS RD.				SHIP TO			
Duston, Texas	7702i						
P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.		PROJECT
374242	Not 30	BCD	2/15/2006	CO. TRK.	HOUSTON		
QTY	PRODUCT#		DESCRIPT	ION	PRICE E	<b>ЛСН</b>	AMOUNT
290	OAL-191	DYNA-SOU	L. 191.CONCE (H	D RESIN		5.95 16	AMCONT
4	118431		Super Duty 7GPM			30.80	123.20
			The second secon				
		Condes	Hawkh	21			
PLEASE REMIT P				7	<b>Published</b>		\$1,610.78
a-one che P.O. Bo Martineville,	X 63				Total		\$1,610.70
	Fex		S-mell		ss <b>Web 81</b>	<b>)</b>	132.8
	281-542-5				www.e-ceachen	inde oor	1743.5

Order Request Form Contact: Phone: Quantity Description Cost \$ Item# Office Use Only Job Expense: Internal Expense: Clipaes What Job? ☐ Give Vendor Re-Sale Certificate □ Vendor to Charge Sales Tax

EPAHO055000217



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

#### Invoice

DATE	INVOICE#
2/29/2008	17594

BILL TO ES ENVIRONMEN 904 GRIGGS RD. IOUSTON, TEXAS				SHIP TO		
P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
LOREN	Net 30	BCD	2/29/2008	CO. TRK.	HOUSTON	
QTY	PRODUCT#		DESCRIPTI	ON	PRICE EACH	AMOUNT
	PUR-756	EMULSIFIER Kurly Kates (		28	130.40	130.40
Please remit P. A-one che					Subtotal	\$1,617.90
P.O. BOY MARTINSVILLE,	K 63	Long -	Hana		Total	\$1,617.90
	Fax #		E-mail		Web Site	133.3
	201 542 5		annahan Basi		www.a.sa.sh.eminale.asm	175 1

### Order Request Form P.O. Number: 374360 one Chemical Contact: Phone: Item# Description Quantity Cost \$ 130.40 Submitted By: Office Use Only Job Expense: Internal Expense: Casses What Job? CS FS Trans 🚊 ☐ Give Vendor Re-Sale Certificate □ Vendor to Charge Sales 1-1x

EPAHO055000219

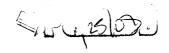
#### CES ENVIRONMENTAL SERVICES, INC.

36712 A One Chemicals & Equipment, Inc. 3/29/2008 Date Type Reference Original Amt. Balance Due Discount Payment 1/25/2008 Bill 17339 987.50 987.50 987.50 1/25/2008 Bill 17340 1,441.64 1,441.64 1,441.64 1/28/2008 Bill 17355 387.00 387.00 387.00 Check Amount 2,816.14

CES Environmental S CES

2,816.14





#### Invoice

DATE	INVOICE#
1/24/2008	17339

#### CHEMICALS & EQUIPMENT, INC.

2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

BILLTO				SHIPT	·····				
CES ENVIRONMEN 4904 GRIGGS RD. HOUSTON, TEXAS				SAME					
P.O. NUMBER	TERMS	RE	P SHIF	VIA	T	F.O.B.	PR	ROJECT	
374087	Not 30	ВС	D 1/24/20	08 CO. TR	K.	HOUSTON	<del></del>	<del></del>	
QTY	PRODUCT#	<b>†</b>	DESC	RIPTION		PRICE EACH		AMOUNT	
250	GAL-ALUM II (X) HAZARDOUS	(X)HAI INORG HYDRI EMERG	BRITE II CONC() RZARDOUS (COR JANIC, N.O.S., 8, U OFLOURIC & SUI GENCY: (806) 424	ROSIVE LIQUID: N#3264 (CONTAI FURIC ACID) -9300	s, ACIDIC,	3.95		987.50 0.00T	
Please remit a	AYMENT TO:		9 -10.11	7	Sul	stotal:		\$987.50	
A-one che P.O. Bot Martinsville,	MICALS K 63				To	tal		\$987.50	
	Fex#		<b>6</b> -i	meif	l	Web Site			
	281-542-50	102	ennerhen	Asel.com		www.a-onechemicals.co			

# Order Request Form Contact: Phone: Quantity Cost \$ Description Item# Office Use Only Job Expense: Internal Expense:

What Job?

☐ Give Vendor Re-Sale Certificate

CS FS

Trans 🚊

SGA MRI

EPAHO055000222





2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000



#### Invoice

DATE	INVOICE#
1/24/2008	17340

BILL 10				1	Shir iu				
CES ENVIRONMED 4904 GRIGGS RD. HOUSTON, TEXAS					SAME				
P.O. NUMBER	TERMS		REP	SHIP	VIA		F.O.B.	<b></b>	OJECT
374128	Net 30		BCD	1/24/2008	CO. TRK.		HOUSTON		
QTY	PRODUCT			DESCRIPT	4		PRICE EACH	A	MOUNT
	GAL-101	DYN		"101"CONCE (F		· · · · · · · · · · · · · · · · · · ·	5.45	<u> </u>	1,362.50
6	A-3032	EMU	ILSIFIER)				13.19		79.14
			rody	Hompton	<b>)</b>				
Please remit payment to: A-one chemicals						Subtotal			\$1,441.64
P.O. BOX MARTINSVILLE,	K 63					To	tal	···	\$1,441.64
	Fa	(#		5-mell			Web Site		-
	281-54	2-5002		acaacham Qac	l.com	***	rw.a-coachamicale.co	m	

Order Request 1	Form	P.O. Number:	374/28
		Date:	24-08
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EPAHO055000224





## Invoice

DATE	INVOICE#		
1/28/2008	17355		

## CHEMICALS & EQUIPMENT, INC.

2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

ВІШТО					SHIP TO				<u> </u>
CES ENVIRONMEN 4904 GRIGGS RD. HOUSTON, TEXAS					SAME				
P.O. NUMBER	TERMS		REP	SHIP	VIA		F.O.B.	PF	ROJECT
374 140	Net 30		BCD	1/28/2008	CO. TRK.		HOUSTON		
QTY	PRODUCT#			DESCRIPT	ПОН		PRICE EACH	٨	MOUNT
			L	gra I	Showar				
PLEASE REMIT PAYMENT TO: A-ONE CHEMICALS				. 0.60		Sub	total		\$387.00
P.O. BON 1, Jaliusuntram	63	Ki,	25/N	mer.		Total			\$387.00
	Fax			<b>E-mail</b>	Ī		Web Site		
	281-542-5002 sonechem		sonechem@sol	.com	W	w.a-onechemicals.com	m		

Order Req	uest Form	P.O. Number:	374140	
		Date:	28/08	_
Vendor:	One Che	mical '	<u> </u>	
Contact:				
Phone:				
Item #	Description		Quantity	Cost \$
	Neutral. Ca	DAC.		
	Air Scr	ubber		
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Submitted By:	Loren T.	·	618-	DSP
/	Manita	•	qui qui	
Approved By:	Junia	Total Valla and Administration Street Administration of the Control of the Contro		
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	Offic	ce Use Only		
Internal Expense	e: Job Exp	ense:		
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SGA MRI		Give Vendor Re-Sale ( Vendor to Charge Sale		*
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CES ENVIRONMENTAL SERVICES, INC.

36542

, A One	e Chemic	cals & Equipment, Inc.		3/19/2008	
Date	Type	Reference	Original Amt.	Balance Due Discount	Payment
1/14/2008	Bill	17248	1,362.50	1,362.50	1,362.50
1/14/2008	Bill	17249	1,991.50	1,991.50	1,991.50
				Chook Amount	2 254 00

CES Environmental S CES

3,354.00

552394 (6/07)





## Invoice

SHIP TO

2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

281-542-5002

CHEMICALS & EQUIPMENT, INC.

BILL TO



DATE	INVOICE#
1/11/2008	17248

04 GRIGGS RD. OUSTON, TEXAS	77021					
P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
374052	Net 30	BCD	1/11/2008	CO. TRK.	HOUSTON	
QTY	PRODUCT#		DESCRIPTI	ON	PRICE EACH	AMOUNT
	GAL-101	EMULSIFIER)	*101*CONCE (H	W/		.45 1,362.50
† ;	i : .	Cody 1	Hanfton		:	
PLEASE REMIT PA		V			Subtotal	\$1,362.50
A-ONE CHEMICALS P.O. BOX 63 MARTINSVILLE, TEXAS 75958		i #	:		Total	\$1,362.50
I		; ; ;				
	Fax#		E-mail		Web Site	

aonechem@aol.com

www.a-onechemicals.com

## P.O. Number: 374052 Order Request Form A one Chemicas Contact: Phone: Cost \$ Description Quantity Item # Submitted By: Office Use Only Job Expense: Internal Expense: Chases CS What Job? FS Trans :

☐ Give Vendor Re-Sale Certificate

□ Vendor to Charge Sales Tax

SGA



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

Fax 并

281-542-5002



## Invoice

DATE	BIVOICE #
17) 173068	17349

ВШТО				SHIP TO				
CES SHVIRONMEN 4984 GRIGGS RD. HOUSTON, TEXAS		¥ vnádkak sodkurani közderská kladele		SAME	e was constituent and constituent		ente a lessonatores establicados de la composição de la c	
P O. NUMBER	TERM S	e autoria de la composition della composition de	SHIP	enemenamenen en samme soo. VIA	ray askara ziterin tandarekinag	0.5.	esses as messessasses messes PROJECT	
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College and an internal and in the College of the C	PRODUCT#	en gamentaren arresto, caresto arresto (n. 1949), et apa	DESCRIPTI	ON	deministration and the second	RICE EACH	AMQUNT	
	UAL-777 PUR-756 (X) HAZARDOUS	DESCRIPTION  DYNA-STRIP "777" PRE-SOLVE SOLVENT STRIPPER (COMBUSTIBLE SOLVENTS, N.O.S., 3, UNWI 268, PROJUDICONTAINS: PETROLEUM DISTILLATES)  Kudy Ester (case) EMERGERELY: (800) 424-9300				12.50	687.50 1,304.00 0.90T	
PLEASE REMIT P. A-ONE CHE P.O. BOT MARTINSVILLE,	AYMENT TO:			Section:	Subtotal Total	andrea additional and the control of	\$1,991.50 \$1,991.50	

Estriali

nonechem@aol.com

Web Site

www.a-onechemicals.com

CES ENVIRONMENTAL SERVICES, INC.

35985

A One Chemicals & Equipment, Inc.

Date Type Reference
12/30/2007 Bill 17177

Original Amt. 1,452.20

Balance Due Discount 1,452.20

Check Amount

2/25/2008

Payment 1,452.20 1,452.20

CES Environmental S CES

1,452.20

552394 (6/07)

EPAHO055000231





## Invoice

## CHEMICALS & EQUIPMENT, INC.

2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

DATE	INVOICE#
1/2/2008	17177

BILLTÓ				SHIP TO			
CES ENVIRONMEN 4904 GRIGGS RD. HOUSTON, TEXAS				SAME			
P.O. NUMBER	TERMS	REP	SHIP	VIA		F.O.B.	PROJECT
373996	Net 30	BCD	1/2/2008	CO. TRK.	<u></u>	HOUSTON	
QTY	PRODUCT#		DESCRIPT	NOF		PRICE EACH	AMOUNT
250	GAL-101	DYNA-SOLV EMULSIFIER	"101"CONCE (H	D RESIN		5.45	1,362.50
6	HANDLES	HANDLE 72	inch wisteel	TIP		14.95	89.70
			Rt				
PLEASE REMIT PA					Subl	total	\$1,452.20
P.O. BOY	₹ 63				Tot	al	\$1,452.20
	Fax#		E-mail			Web Site	
	201 542 5002						

## **Order Request Form** Vendor: A one Chamical Phone: **Description** Item# Quantity Cost \$ 1 7012 Submitted By: Approved By: Office Use Only Internal Expense: Job Expense: What Job? \_\_\_\_\_ \_\_\_\_CS FS \_\_\_\_ Trans SGA ☐ Give Vendor Re-Sale Certificate

☐ Vendor to Charge Sales Tax

\_ MRI DRM

CES ENVIRONMENTAL SERVICES, INC.

35389

A One	Chemic	ais & Equipment, inc.		1/28/2008	
Date	Type	Reference	Original Amt.	Balance Due Discount	Payment
12/10/2007	Bill	16991	1,362.50	1,362.50	1,362.50
`12/19/2007	Bill	17102	2,551.60	2,551.60	2,551.60
				Check Amount	3 91/ 10

CES Environmental S CES

3,914.10







## Invoice

DATE	INVOICE#
11/29/2007	16991

## CHEMICALS & EQUIPMENT, INC. 2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

P.O. BOX 63 MARTINSVILLE, TEXAS 75958

BILLTO				SHIP TO		
CES ENVIRONMEN 4904 GRIGGS RD. HOUSTON, TEXAS				SAME		
P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
373818	Net 30	BCD	11/29/2007	CO. TRK.	HOUSTON	
QTY	PRODUCT#		DESCRIPT	ION	PRICE EACH	AMOUNT
250	GAL-101	emulsifier)	*101 CONCE (H		5.45	1,362.50
PLEASE REMIT PA			7	•	Subtotal	\$1,362.50

Fax#	<b>ii-mail</b>	Web Site
281-542-5002	aonechem@aol.com	www.s-onechemicals.com

Total

\$1,362.50

## **Order Request Form**

DRM

P.O. Number: 373818 Vendor: A one Chemical Contact: Phone: **Description** Quantity Item# Cost \$ Red Soup. Submitted By: Manita Office Use Only Internal Expense: Job Expense: CS What Job? FS Trans **SGA** ☐ Give Vendor Re-Sale Certificate **MRI** ☐ Vendor to Charge Sales Tax



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

M DOSTE		Invoice
TPC !	DATE	INVOICE#
	12/14/2007	17102

BILL TO	SHIP TO
CES ENVIRONMENTAL 4904 GRIGGS RD. HOUSTON, TEXAS 77021	SAME

P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
3 <b>7</b> 3894	Net 30	BCD	12/14/2007	CO. TRK.	HOUSTON	
<b>QT</b> Y	PRODUCT#		DESCRIPTI	ON	PRICE EACH	AMOUNT
250	GAL-FLEET WA		CONC.(HD LIQU	ЛD	3.45	862.50
250	GAL-101		DEGREASER) "101"CONCE (HI	) resin	5,45	1,362.5
	118431	Drum Pump St	per Duty 70PM		30.80	123.2
	HANDLES A-3026	1	inch w/steel t Mcal brushes		14.95 18.95	89.7 113.7
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		11		_		
		SM				
	<u> </u>	L				

PLEASE REMIT PAYMENT TO: A-ONE CHEMICALS P.O. BOX 63 MARTINSVILLE, TEXAS 75958 
 Subtotal
 \$2,551.60

 Total
 \$2,551.60

Fax#	E-mail	Web Site
281-542-5002	aonechem@aol.com	www.a-onechemicals.com

## P.O. Number: 373 494 **Order Request Form** Date: 12 -13-07 Contact: Phone: **Description** Item # Quantity Cost \$ Submitted By: \_ Office Use Only Internal Expense: Job Expense: What Job? CS FS \_ Trans SGA ☐ Give Vendor Re-Sale Certificate

☐ Vendor to Charge Sales Tax

**MRI** 

DRM

CES ENVIRONMENTAL SERVICES, INC.

35188

A One Chemicals & Equipment, Inc.

Date Type Reference 11/21/2007 Bill 16858

Original Amt. 1,575.40 1/16/2008
Balance Due Discount
1,575.40
Check Amount

Payment 1,575.40 1,575.40

CES Environmental S CES

1,575.40

552394 (6/07)



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

## Invoice

DATE	INVOICE#
11/3/2007	16858

BILL TO	SHIP TO
CES ENVIRONMENTAL 1904 GRIGGS RD. HOUSTON, TEXAS 77021	SAME

P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
373715	Net 30	BCD	11/8/2007	CO. TRK.	ноизтои	***
QTY	PRODUCT#		DESCRIPTI	ON	PRICE EACH	AMOUNT
	GAL-101 HANDLES 118431	EMULSIFIER) HANDLE 72	"101"CONCE (HI INCH W/STEEL 1 Iper Duty 7GPM		5.45 14.95 30.80	89.70
		PO	<b>OSTI</b>			
			NOU			
PLEASE REMIT PA		l			Subtotal	\$1,575.40
P.O. BOX MARTINSVILLE, 1	C 63			•	Total	\$1,575.40

Fax#	E-mail	Web Site
281-542-5002	aonachem@aol.com	www.a-onechemicals.com

## **Order Request Form**

SGA

MRI

DRM

Vendor: A-one Chemicas Contact: Phone: **Description** Quantity Item # Submitted By: \_ Approved By: Office Use Only Internal Expense: Job Expense: What Job? \_\_\_\_\_ CS FS Trans

☐ Give Vendor Re-Sale Certificate

☐ Vendor to Charge Sales Tax

#### CES ENVIRONMENTAL SERVICES, INC.

39807

A One	: Chemic	als & Equipment, Inc.	r	8/25/2008	
Date	Type	Reference	Oʻriginal Amt.	Balance Due Discount	Payment
6/23/2008	Bill	18212	4,658.55	4,658.55	4,658.55
6/23/2008	Bill	18234	3,318.95	3,318.95	3,318.95
6/23/2008	Bill	18257	3,257,46	3,257.46	3,257.46
7/1/2008	Bill	18311	3,181.68	3,181.68	3,181.68
7/9/2008	Bill	18336	3,658.85	3,658.85	3,658.85
				Check Amount	18 075 49

CES Environmental S CES

18,075.49







2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

## Invoice

DATE	INVOICE#
6/11/2008	18212

BILL TO	SHIP TO
CES ENVIRONMENTAL 4904 ORIGOS RD. HOUSTON, TEXAS 77021	SAME

P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
375211	Net 30	BCD	6/11/2008	CO. TRUCK	DEER PARK	
QTY	PRODUCT#		DESCRIPTI	ON	PRICE EACH	AMOUNT
14,080	SODIUM HYDR	SODIUM HYD	ROXIDE SOLUT	ION, 8, UN#1824	( <b>160</b> 0	20 2,816.00T
250	GAL-101	DYNA-SOLV	"101"CONCE (HI	RESIN	5	.95 1,487.50T
	(X) HAZARDOUS	EMULSIFIER) EMERGENCY Sales Tax	': (800) 424-9300		8.2	0.00T 5% 355.05
Le18-Chem 1W=2151, 1SP=215 DSP=215	15 1.75 1.75 1.75 1.75 1.71.55 1.71.55 1.71.55	38.55		γį	CHIL	

PLEASE REMIT PAYMENT TO: A-ONE CHEMICALS P.O. BOX 63 MARTINSVILLE, TEXAS 75958 In the state of

Subtotal \$4,303.50

Total \$4,658.55

Fax#	E-mail Web Site	
281-542-5002	aonechem@aol.com	www.a-onechemicals.com



## SERVICE & MAINTENANCE REPAIR ORDER

## CHEMICALS & EQUIPMENT, INC.

2902 EAST "X" STREET • DEER PARK, TX 77536 (281) 542-5000 • Fax (281) 542-5002 Toll Free (877) 644-1492 • aonechem@aol.com

CHEMICAL CUSTOMER ADDRESS OF LOCATION STATE & ZIP TYPE OF UNIT POWER  MAKE OF PUMP & MOTOR TYPE OF CHEMICAL PUMP SN #		100 (077) 044 1472	- aoriectient@aor.com	CONTAC	TELEPHONE	E   E-MAIL
CHEMICAL CUSTOMER ADDRESS OF LOCATION  STATE & ZIP TYPE OF UNIT POWER  SN#  MAKE OF PUMP & MOTOR  TYPE OF CHEMICAL PUMP  SN#  MAKE OF PUMP & MOTOR  TYPE OF CHEMICAL PUMP  SN#  UNIT PRICE EACH  TOTAL  TOTAL  DESCRIPTION OF REPAIR & MAINTENANCE PERFORMED  DESCRIPTION OF REPAIR & MAINTENANCE PERFORMED  SUBTOTAL OF PARTS \$ HOURS @ \$  RATE LABOR CHARGES SERVICE CALL SUBTOTAL  TAX  TOTAL  CUSTOMER SIGNATURE	DATE		COMPANY NAME	CONTAC	IELEPHON	E-WAIL
CHEMICAL CUSTOMER ADDRESS OF LOCATION  STATE & ZIP TYPE OF UNIT POWER  SN#  MAKE OF PUMP & MOTOR  TYPE OF CHEMICAL PUMP  SN#  MAKE OF PUMP & MOTOR  TYPE OF CHEMICAL PUMP  SN#  UNIT PRICE EACH  TOTAL  TOTAL  DESCRIPTION OF REPAIR & MAINTENANCE PERFORMED  DESCRIPTION OF REPAIR & MAINTENANCE PERFORMED  SUBTOTAL OF PARTS \$ HOURS @ \$  RATE LABOR CHARGES SERVICE CALL SUBTOTAL  TAX  TOTAL  CUSTOMER SIGNATURE	( 170	1.63			ì	
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HOURS @ \$ LABOR CHARGES  SERVICE CALL  SUBTOTAL  TAX  TOTAL  CUSTOMER SIGNATURE	DESCRIPT	ION OF REPAIR &	MAINTENANCE PERFORMED			RTS\$
TAX  TOTAL  CUSTOMER SIGNATURE				RAT HOURS @ \$	LABOR CHAR	GES
TAX TOTAL CUSTOMER SIGNATURE					SERVICE C	CALL
CUSTOMER SIGNATURE					SUBTO	DTAL
CUSTOMER SIGNATURE						TAX
for your section of the section of t					TOT	'AL
DATE COMPLETED				CUSTOMER SIGNATU	RE/ Una	<u> </u>
				DATE COMPLETED	5	

Order Ro	equest Form	P.O. Number: 3	75211	
Vendor:	A one cher	Date:	12-08	
Contact:				
Item #	Description  CAUSTIC.		Quantity Cos	_
	RED SOAP.		4 TOTE 25	00 00
		·		
·.				
		₹ ₹		
Submitted By:	Loren Thoma	•	DSO CAU	stic
Approved By:	Albrita	<u></u>	12 rol	Red
Thhroson pl			1/ DSP / "	soaf.
	Office Us	se Only		
Internal Exper				
<u>CS</u> FS		100		



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

## Invoice

DATE	INVOICE#
6/16/2008	13234

BILL TO	
CES ENVIRONMENTAL 4904 GRIGGS RD. HOUSTON, TEXAS 77021	

SHIP TO	 		
SAME			

,						
P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
LOREN	Net 30	BCD	6/16/2008	CO. TRUCK	ноизтон	
<b>Ω</b> ΤΥ	PRODUCT#		DESCRIPTI	ON	PRICE EACH	AMOUNT
	SODIUM HYDR (X) HAZARDOUS 159580  TAX  TAX  TAX  TAX	EMERGENCY 50' X 3/8" - R Sales Tax	?: (800) 424-9300 ·2 Hose (6,000 ps	TON, 8, UN#1824	125.00 8.25%	
PLEASE REMIT PA	AYMENT TO:	fin the	do fe		Subtotal	\$3,066.00
A-ONE CHEI P.O. BOX MARTINSVILLE, 1	C 63		(		Total	\$3,318.95

Fax # E-mail Web Site

281-542-5002 aonechem@aol.com www.a-onechemicals.com



## SERVICE & MAINTENANCE REPAIR ORDER

## CHEMICALS & EQUIPMENT, INC.

2902 EAST "X" STREET • DEER PARK, TX 77536 (281) 542-5000 • Fax (281) 542-5002

Toll Free (877) 644-1492 • aonechem@aol.com

DATE		COMPANY NAME	CONTACT	TELEPHONE	E-MAIL
6-12-08	CES				
CHEMICAL CUSTOMER	AD	DRESS OF LOCATION	STATE & ZIP	TYPE OF UNIT	POWER
OOOTOMER	Honston		·		
TIME IN	MAKE OF	PUMP & MOTOR	TYPE OF CHEMICAL	PUMP	SN#
TIME OUT					
QUANTITY	PART NUMBER	DESCRIPTION (	OF ITEM	UNIT PRICE EACH	TOTAL
2	159310	50'-3/2'Rd hoses			
-					
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			·		
	<u> </u>				
		**		- 504	
-					
	<u> </u>				
DESCRIPT	ION OF REPAIR &	MAINTENANCE PERFORMED	S	SUBTOTAL OF PARTS	; \$
			RATEHOURS @ \$	LABOR CHARGES	
Invoice # 18234		SERVICE CALL			
				SUBTOTAL	
				TAX	
			CUSTOMER SIGNATURE	TOTAL	
			OUGTOWIER GIGINATURE	a book	
			DATE COMPLETED		



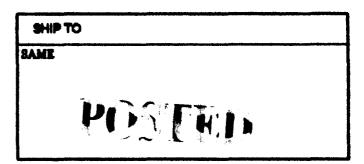
2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

## Invoice

DATE	INVOICE#	
6/19/2008	18257	

BILLTO	
CES ENVIRONMENTAL 4904 GRIGGS RD. HOUSTON, TEXAS 77021	

281-542-5082



P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
375298	Net 30	BCD	6/19/2008	CO. TRUCK	HOUSTON	
QTY	PRODUCT#		DESCRIPT	ION	PRICE BACH	AMOUNT
250	SODIUM HYDR (X) HAZARDOUS GAL-101 A-3026	EMERGENCY DYNA-BOLV EMULEIPIER	r: (800) 434-9300 ' "101"CONCE (H	D RESIN	0.20 5.95 18.95 8.25%	1,408.00 0.00 1,487.50 113.70 248.26
618-CRe 8 CAM-	mical DSP=215 TAX=177 TW 743. TAX 61. ViesTW TAX	1.75 1.52 75 36 113.70 2.38				
PLEASE REMIT PA	AYMENT TO:			•	ubtotal	\$3,009.20
P.O. BOX MARTINEVILLE, 1	C 63			1	<b>iotal</b>	\$3,257.46
	Fax #		S-mail		Web Site	

		4 (0 - 0)	
	Date	: 6-19-08	•
	Vendor: A one Chemica's	,	
	Contact:		
	Phone:		
	Item # Description	Quantity	Cost \$
	DSP 618 50 % Caustic sort	la. 2.1012	
	Tw Truck Brush		80 %
	BOSE GTW Red Soap.		Bose
			. <u> </u>
en de	Submitted By: Lonen Thoma	DSP	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	Approved By: Love Ilone.	618	en Selection
<u> </u>			
**************************************	Office Use Only		2. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
	Internal Expense:  Onases		
	CS What Job? FS		, 10 pg 1760
		rRe-Sale Certificate Charge Sales 1x	
	DRM DSG		

P.O. Number:\_\_\_\_

Order Request Form

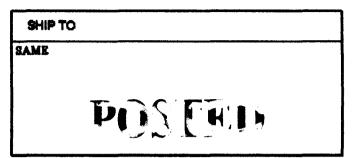


2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

## Invoice

DATE	INVOICE#
7/1/2008	18311

BILLTO	
CES ENVIRONMENTAL 4904 GRIGGS RD. HOUSTON, TEXAS 77021	



P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
375363	Not 30	BCD	7/1/2008	CO. TRUCK	HOUSTON	
QTY	PRODUCT#		DESCRIPTI	ION	PRICE EACH	AMOUNT
-	SODIUM HYDR (X) HAZARDOUS 118431	EMERGENCY Drum Pump St Sales Tex	': (800) 424-9300 sper Duty 7GPM	Merrice.	30.80	0.00° 123.20° 242.48
Please remit pa A-one chei					<u>Subtotal</u>	\$2,939.20
P.O. BOX MARTINSVILLE, 1	<b>C 63</b>				Total	\$3,181.68

Fax#	6-mail	Web Site
281-542-5002	sonechem@sol.com	www.a-onechamicals.com

Order Request Form		P.O. Number:_	37536	3
		Date:	-1-08	
Vendor: A one	Chem	ical		
Contact:				
Phone:				
Item # Description			Quantity	Cost \$
502 C	austic	Soda	100060	3000
Hand	Dece 0.			
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Submitted By:	nonas		e e gareno <del>alla cons</del> cione	and the second s
Approved By: oren -	Thomas			
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	Office Use	Only		
	b Expense:		The second secon	
Charen	What Job?			n programme (1995) and the second of the sec
FS	vv nat JUU:			A STATE OF THE STA
Trans = SGA = T		/endor Re-Sale		
MRI DRM	☐ Verido	or to Charge Sale	S EX	- 100 - 100

Monday, July 07, 2008 America Unine: AUNE CHEM



CHEMICALS & EQUIPMENT, INC.

2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

## Invoice

INVOICE#
18336

BILL TO	
CES ENVIRONMENTAL 4904 GRIGGS RD. HOUSTON, TEXAS 77021	

SHIP TO	
SAME	
	DOCHID

P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
375402	Net 30	BCD	7/8/2008	CO. TRUCK	HOUSTON	
QTY	PRODUCT#		DESCRIPTI	ON	PRICE EACH	AMOUNT
250	GAL-101	DYNA-SOLV EMULSIFIER)	"101"CONCE (HI	RESIN	6.4	1,612.50T
200	GAL-ALUM II	DYNA-BRITE (X)HARZARD INORGANIC,	II CONC(HD AL OUS (CORROSI N.O.S.,8,UN#326	TE LIQUIDS, ÁCI 4 (CONTAINS:	4.8:	970.00T
55	GAL-777	DYNA-STRIP STRIPPER(CO SOLVENTS,N	.O.S.,3,UN#1268,	e solvent Pkg.iii)(conta		797.50T
	(X) HAZARDOUS	EMERGENCY Sales Tax	í: (800) 424-93ÓO	Jonace Shome	8.259	0.00T 278.85

PLEASE REMIT PAYMENT TO: A-ONE CHEMICALS P.O. BOX 63 MARTINSVILLE, TEXAS 75958 Subtotal \$3,380.00

Total

Fax#	E-mail	Web Site
281-542-5002	sonechem@sol.com	www.a-onechemicals.com

\$3,658.85

# Order Request Form A one Chemical Contact: Phone: Description Item# Quantity Cost \$ 55GAL Submitted By: Office Use Only The state of the s Job Expense: Internal Expense: What Job

☐ Vendor to Charge Sales ■ x

FS

CES ENVIRONMENTAL SERVICES, INC.

40499

A One Chemicals & Equipment, Inc.

Date 7/25/2008 Bill

Туре

Reference 18402

Original Amt.

5,971.07

9/19/2008 Balance Due Discount 5,971.07

Check Amount

Payment 5,971.07 5,971.07

CES Environmental S CES

5,971.07





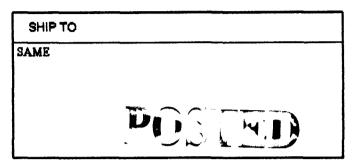


2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

## Invoice

DATE	INVOICE#
7/16/2008	13402

BILLTO	
CES ENVIRONMENTAL 4904 ORIOGS RD. HOUSTON, TEXAS 77021	



P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
375482	Net 30	BCD	7/16/2008	CO. TRUCK	DEER PARK	
QTY	PRODUCT#		DESCRIPTI	ON	PRICE EACH	AMOUNT
	SODIUM HYDR GAL-101	DYNA-SOLV	"101"CONCE (H	TION, 8, UN#1824 D RESIN	0.2 6.4	
250	GAL FLEET WA		) I II CONC.(HD LI (DEGREASER)	QUID	4.3	
,	(X) HAZARDOUS	EMERGENCY Sales Tax	r: (800) 424-9300		8.25	0.00T 455.07
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PLEASE REMIT PAYMENT TO: A-ONE CHEMICALS P.O. BOX 63 MARTINSVILLE, TEXAS 75958 Loren

**Subtotal** \$5,516.00

**Total** \$5,971.07

Fax#	Fax# E-mail Web S			
281-542-5002	aonechem@aol.com	www.a-onechemicals.com		



2902 EAST "X" STREET • DEER PARK, TX 77536 • (281) 542-5000

## Invoice

DATE	INVOICE#
7/15/2008	18391
	1

BILLTO	SHIP TO
CES ENVIRONMENTAL 4904 GRIGGS RD. HOUSTON, TEXAS 77021	SAME

P.O. NUMBER	TERMS	REP	SHIP	VIA	F.O.B.	PROJECT
	Net 30	BCD	7/10/2008	CO. TRUCK	DEER PARK	
QTY	PRODUCT#		DESCRIPT	ION	PRICE EACH	AMOUNT
1	337545	WITH BELT		4T/208/130/460/3P		867.92
	430027	Thermostat, A	djustable Flow Th	ru 85-195 F. 3000p	si 93.40	93.40
1	411065	Pressure Switc	h 250 V/15 amp.	3/8" MPT	92.30	92.30
		Sales Tax			8.25%	86.93

PLEASE REMIT PAYMENT TO: A-ONE CHEMICALS P.O. BOX 63 MARTINSVILLE, TEXAS 75958

Lorend Shomar

**Subtotai** \$1,053.62

**Total** \$1,140.55

Fax#	E-mail	Web Site
281-542-5002	nonechem@nol.com	www.a-onechemicals.com



## **SERVICE & MAINTENANCE REPAIR ORDER**

## CHEMICALS & EQUIPMENT, INC.

2902 EAST "X" STREET • DEER PARK, TX 77536 (281) 542-5000 • Fax (281) 542-5002

	ree (8//) 644-1492	• aonechem@aol.com					
DATE		COMPANY NAME		CONTACT	TELEPHONI	E	E-MAIL
7-14-14	1055	•					
7-10-08 CHEMICAL	AD	DRESS OF LOCATION	STAT	TE & ZIP	TYPE OF UNI	T	POWER
CUSTOMER	Houston						
TIME IN	MAKE OF	PUMP & MOTOR	TYPE C	F CHEMICAL	. PUMP	Γ	SN#
TIME OUT							
QUANTITY	PART NUMBER	DESCRIPTION OF ITEM			UNIT PRICE EA	CH	TOTAL
1		15 hip. Balder motor					
1		Thermostat					
1	411065	PBI Pressure switch	`				
-2 <b>40y</b> 0 - 3, 3, 3							
	x + }		,				
	<b>\</b>						
DESCRIPT	TION OF REPAIR &	MAINTENANCE PERFORMED	<u></u>		SUBTOTAL OF PA	RTS\$	
		•	HOL	RATE JRS @ \$	LABOR CHAR	GES	
1	Nuoice# 183	39/			SERVICE C	 Call	
	V 20.02				SUBTO	OTAL	
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			DATE CO	MPLETED	1000 / 11/a	F	And the State of Stat
			12, 2		1 1/11/0	<i>(</i> J	



## **SERVICE & MAINTENANCE REPAIR ORDER**

### CHEMICALS & EQUIPMENT, INC.

2902 EAST "X" STREET • DEER PARK, TX 77536 (281) 542-5000 • Fax (281) 542-5002

	100 (077) 044-1492	• aonechem@aoi.com		CONTACT	TELEDUONE	E-MAIL			
DATE		COMPANY NAME		CONTACT	TELEPHONE	E-MAIL			
7-1-6-	laje v					·			
CHEMICAL	AD	DRESS OF LOCATION		STATE & ZIP	TYPE OF UNIT	Γ POWER			
CUSTOMER									
	MAKEOL	PUMP & MOTOR		TYPE OF CHEMICA	I DUMD	SN#			
TIME IN	, IVIANE OF	YOMP & MOTOR TYPE OF CHEMICAL			L F OWF	3N#			
TIME OUT									
QUANTITY	PART NUMBER	DESCR	IPTION OF	UNIT PRICE EA	CH TOTAL				
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DESCRIPT	ION OF REPAIR &	MAINTENANCE PERFO	RMED		CURTOTAL OF PA	DTC ¢			
-2331111				RATE	SUBTOTAL OF PA				
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	•				SERVICE C	CALL			
					SUBTO	DTAL			
		•	<u> </u>			TAX			
, ,			-		TOT				
			1	CUSTOMER SIGNATUR		AL			
					- 123 - 129	1			
			[	DATE COMPLETED	<u> </u>	)			
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## Order Request Form

P.O. Number: 37548Z

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